

PK12FK3 PK18FK3 PK24FK3 PK30FK3 PK36FK3

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PK12FK₁ → PK12FK3

PK18FK₂ → PK18FK3

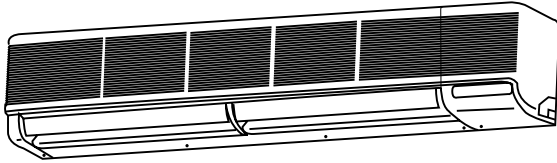
PK24FK₂ → PK24FK3

PK30FK₂ → PK30FK3

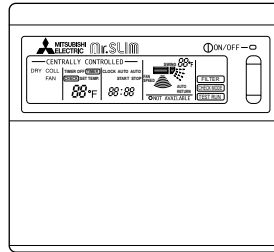
PK36FK₂ → PK36FK3

● INDOOR CONTROLLER BOARD has changed.

- 1) From TRANSFORMER to POWER BOARD.
- 2) From JUMPER CONNECTOR(J1) to DIP SWITCH(SW1).
- 3) From JUMPER CONNECTOR(J5) to DIP SWITCH(SW5).
- 4) The number of switches of SW7 changed from 4 to 3 pieces.
- 5) SW8 for option and SW9 for model selector are added.



Indoor unit



Remote controller

| Models | Cooling capacity | SEER |
|---------|------------------|------|
| PK12FK3 | 12,500 Btu/h | 11.5 |
| PK18FK3 | 18,500 Btu/h | 11.3 |
| PK24FK3 | 24,000 Btu/h | 10.6 |
| PK30FK3 | 30,000 Btu/h | 10.7 |
| PK36FK3 | 34,200 Btu/h | 10.2 |

1. COMPACT DESIGN

The PK series models have been downsized and now require such minimal wall space that they can even be installed above windows. For the PK12FK3, 11-13/16in of wall space between the ceiling and the window allows “above window” installation. (13-3/8in for the PK24/30/36FK3)

2. AUTO FLAP SHUTTER

With a simple flick of the OFF switch the air outlet will be closed off with a shutter. The shutter also functions as a flap during operation to adjust the air flow angle, with “Auto Angle 1” securing a comfortable air flow.

3. INSTALLATION : FAST AND ENDLESSLY ADAPTABLE

(1) Multi-directional piping

Multi directional drain and refrigerant piping radically improves flexibility in selecting installation layouts.

PK12FK3 drain piping can be installed in 5 directions, while PK18/24/30/36FK3 models boast refrigerant piping in 4 directions and drain piping 2 directions.

(2) Back plate installation guide

The back plate installation guide gives clear instructions on installation positions. The enlarged back plate secures the unit firmly to the wall, while the support piece which lifts the unit makes left side piping work much easier.

(3) Easily removable filter

The presence of thumbscrews on the filters means that the filters can be quickly and smoothly removed.

4. ADVANCED MICROPROCESSOR

(1) Easy to Use Microprocessor

1) Ultra-Thin Remote Controller

The streamlined, wide controller is designed to blend with any kind of interior and the adoption of a sophisticated microprocessor allows you to carry out a wide range of operations easily.

2) Attractive Liquid Crystal Display (LCD)

Units operation mode, set temperature, room temperature, timer setting, fan speed, and air flow direction are displayed on the remote controller with the easily understood visual Liquid Crystal Display (LCD).

3) Convenient 24-Hour ON-OFF Timer

The timer allows Mr.SLIM to be switched on or off automatically at the time is shown on the LCD.

4) Self-Diagnostic Feature Indicates Instantly

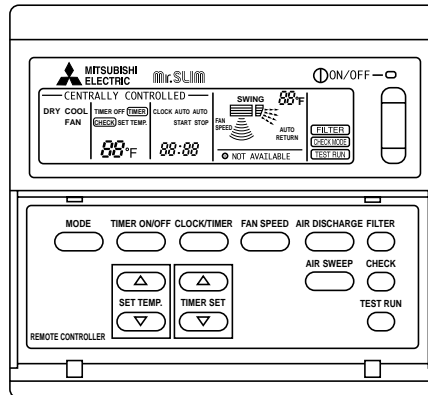
In the rare case when a problem occurs, the unit stops operating and the set temperature indicator changes to the self-diagnostic indicator, indicating the location of the fault.

If the check switch is pressed twice, the unit stops operating and the check mode is initiated. The cause of the most recent problem stored in the memory is displayed on the LCD. This is extremely useful for maintenance purposes.

5) Useful Memory Feature for Storing Instructions

The previous set value is memorised so that constant temperature control can be obtained. This is convenient when, for example, a power failure occurs.

[Remote controller]



(2) Non-polar Two-Wire Remote Controller Cables

The non-polar, two-wire type remote controller cable is slim, installation is simple and trouble-free. Remote controller wire can be extended up to 550 yards.

5. REDI-CHARGED REFRIGERANT SYSTEM

PRE-CHARGE REFRIGERANT REQUIRED FOR LINE LENGTH OF 100ft AT SHIPMENT. PREVENTING TROUBLES DUE TO SHORTAGE OF REFRIGERANT.

The unique refrigerant circuit and a large accumulator always controls the refrigerant to its optimum condition regardless of the length of 164ft maximum. The additional refrigerant charging work at the field which often caused uncertain problems heretofore is completely eliminated. This unique system serves to improve the quality of work and reliability, and also helps to speed up the installation work.

6. HIGH RELIABILITY AND EASY SERVICING

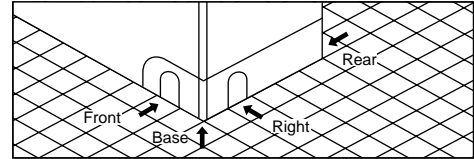
In addition to the self-diagnostic function, units are also equipped with a 3-minute time delay mechanism (cooling), an auto restart function, an emergency operation function, a test run switch, etc., to assure high reliability and easy servicing.

7. FOUR-WAY PIPING ACCESS MAKES INSTALLATION LAYOUT EASY

Piping on the outdoor unit may be connected from either of four directions: front, rear, side or beneath the base.

This easy-access design makes it possible to install a number of units in a compact arrangement at a single site.

The outdoor unit allows for unheard-of flexibility in determining a piping layout, thus greatly simplifying installation.



8. FRONT-ACCESS FACILITATES MAINTENANCE

The outdoor unit has been designed with a front access service panel that allows easy access to all maintenance point, regardless of the installation layout. What's more, this front panel may be removed by loosening only two screws. It all adds up to greatly simplified maintenance work.

9. NITROGEN GAS IS CHARGED TO INDOOR UNIT

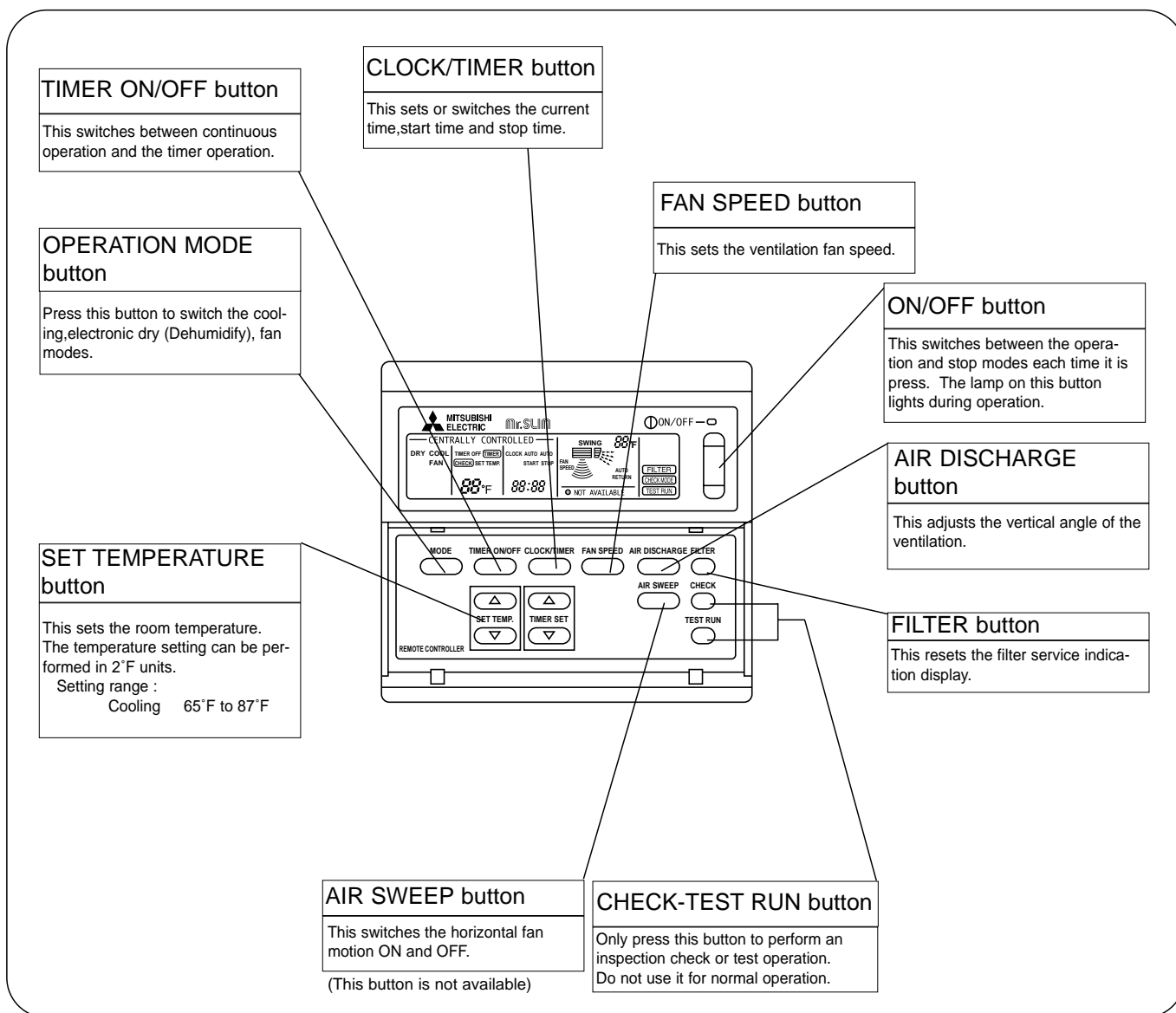
Indoor unit and refrigerant pipes are charged with nitrogen gas (N₂) instead of R-22 before shipment from the factory.

Remote controller

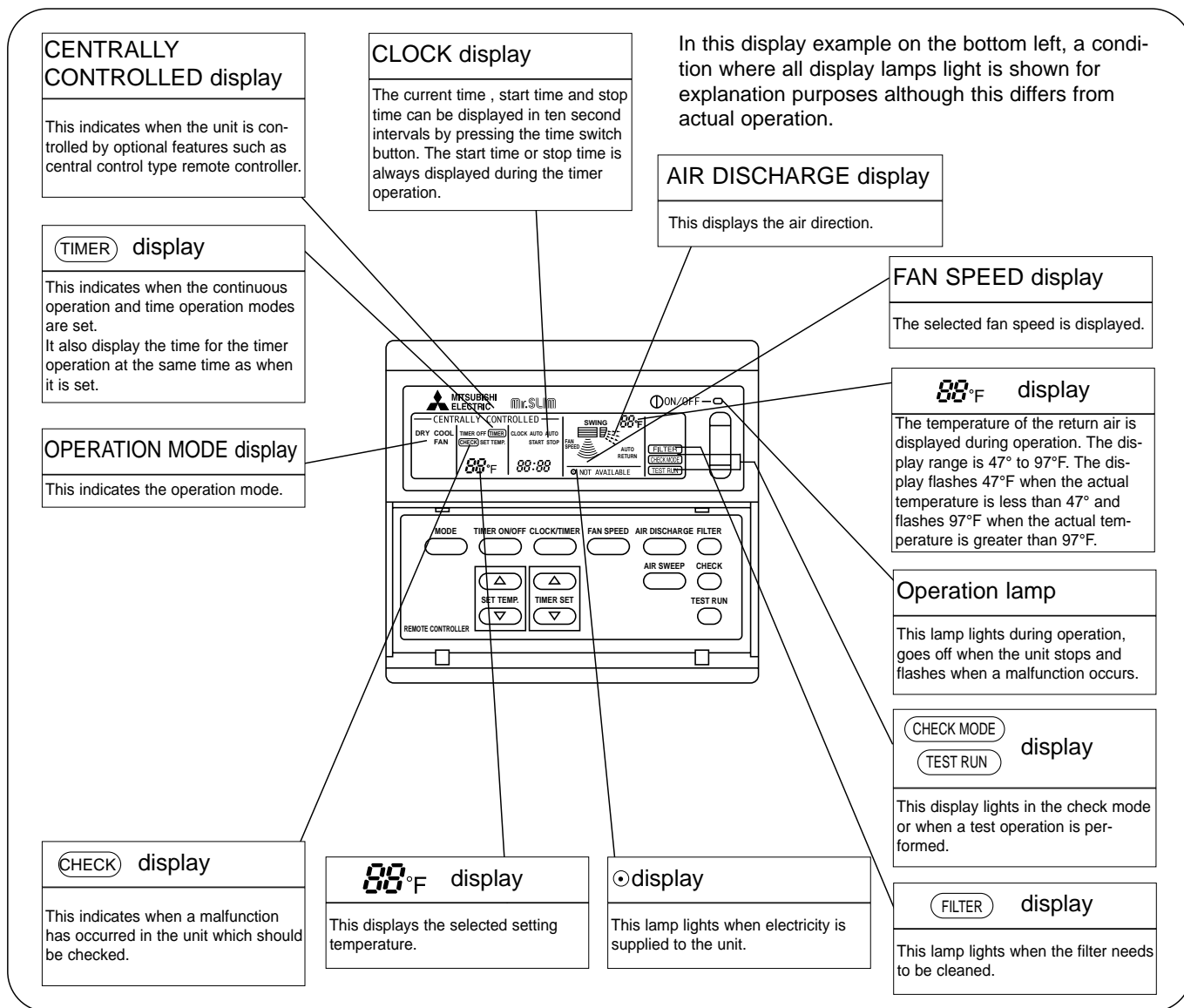
Settings remain in effect until changed.

Air conditioner can be operated by simply pushing ON/OFF button once settings have been made.

Remote controller operation buttons



Remote controller display



Caution

- Only the ⊙ display lights when the unit is stopped and power supplied to the unit.
- When power is turned ON for the first time the (CENTRAL CTRL) display appears to go off momentarily but this is not a malfunction.
- When the central control remote control unit, which is sold separately, is used the ON-OFF button, OPERATION MODE button and SET TEMP button do not operate.
- "NOT AVAILABLE" is displayed when the AIR SWEEP button are pressed.
(AIR SWEEP function is not provided for PK series.)

MODELS : PK12FK3, PK18FK3, PK24FK3, PK30FK3, PK36FK3

| Model | | | PK12FK3 | PK18FK3 | PK24FK3 | PK30FK3 | PK36FK3 |
|---|---------------|--------|---|---------------------|---------------------|---------------------|---------------------|
| Item | | | | | | | |
| Capacity | ☼ 1 | Btu/h | 12,500 | 18,500 | 24,000 | 30,000 | 34,200 |
| Power consumption | ☼ 1 | kW | 1.21 | 1.75 | 2.34 | 3.06 | 3.47 |
| EER | ☼ 1 | | 10.3 | 10.6 | 10.3 | 9.8 | 9.9 |
| SEER | | | 11.5 | 11.3 | 10.6 | 10.7 | 10.2 |
| INDOOR UNIT MODEL | | | PK12FK3 | PK18FK3 | PK24FK3 | PK30FK3 | PK36FK3 |
| External finish | | | Munsell 3.4Y7.7/0.8 | | | | |
| Power supply V, Phase, Hz | | | 115, 1, 60 | | | | |
| Max. fuse size (time delay) A | | | 15 | 15 | 15 | 15 | 15 |
| Min ampacity A | | | 1 | 1 | 1 | 2 | 2 |
| Fan motor F.L.A. | | | 0.7 | 0.7 | 0.7 | 1.0 | 1.0 |
| Airflow Hi-Lo | Dry | CFM | 490-350 | 710-530 | 710-530 | 990-780 | 990-780 |
| | Wet | CFM | 440-320 | 640-480 | 640-480 | 890-700 | 890-700 |
| Moisture removal Pints/h | | | 3.8 | 5.3 | 7.2 | 9.6 | 10.5 |
| Sound level Hi-Lo dB | | | 45-38 | 48-41 | 48-41 | 49-44 | 49-44 |
| Cond. drain connection OD in. | | | 1 | 1 | 1 | 1 | 1 |
| Dimensions | W | in. | 49-7/32 | 55-1/8 | | 66-5/32 | |
| | D | in. | 7-7/8 | 9-1/4 | | | |
| | H | in. | 11-13/16 | 13-3/8 | | | |
| Weight lb. | | | 37 | 53 | 53 | 62 | 62 |
| OUTDOOR UNIT MODEL | | | PU12EK ₁ | PU18EK ₁ | PU24EK ₁ | PU30EK ₁ | PU36EK ₁ |
| External finish | | | Munsell 5Y7/1 | | | | |
| Power supply V, Phase, Hz | | | 208/230, 1, 60 | | | | |
| Max. fuse size (time delay) A | | | 15 | 20 | 20 | 30 | 30 |
| Min. ampacity A | | | 11 | 16 | 16 | 20 | 22 |
| Fan motor F.L.A. | | | 0.65 | 0.75 | 0.65+0.65 | 0.65+0.65 | 0.75+0.75 |
| Compressor | Model | | RH167NAB | RH247NAB | NH33NBD | NH41NAD | NH47NAD |
| | | R.L.A. | 8.9 | 12.0 | 11.5 | 14.0 | 17.5 |
| | | L.R.A. | 29 | 37 | 54 | 73 | 87 |
| Crankcase heater A(W) | | | 0.11/0.12 (23/28) | 0.11/0.12 (23/28) | 0.16/0.17 (33/39) | 0.16/0.17 (33/39) | 0.16/0.17 (33/39) |
| Refrigerant control | | | Capillary tube | | | | |
| Sound level dB | | | 50 | 53 | 55 | 55 | 55 |
| Dimensions | W | in. | 34-1/4 | | | | 38-3/16 |
| | D | in. | 11-5/8 | | | | 13-9/16 |
| | H | in. | 25-9/16 | 33-1/2 | 49-9/16 | | |
| Weight lb. | | | 105 | 154 | 207 | 208 | 220 |
| REMOTE CONTROLLER | | | With indoor unit | | | | |
| Control voltage (by built-in transformer) | | | Indoor unit - remote controller : DC12V, Indoor unit - outdoor unit : DC12V | | | | |
| REFRIGERANT PIPING | | | Not supplied (optional parts) | | | | |
| Pipe size | Liquid | in. | 3/8 | | | 1/2 | |
| | Gas | in. | 5/8 | | | 3/4 | |
| Connection method | Indoors | | Flared | | | | |
| | Outdoors | | Flared | | | | |
| Between the indoor & outdoor units | Height | ft | 130 | | 164 | | |
| | Piping length | fr | 130 | | 164 | | |

NOTES : ☼ 1.Rating conditions —indoor : DB 80°F, WB 67°F outdoor : DB 95°F, WB 75°F.

Operating range

| | | Indoor intake air temperature | Outdoor intake air temperature |
|---------|---------|-------------------------------|--------------------------------|
| Cooling | Maximum | DB 95°F, WB 71°F | DB 115°F |
| | Minimum | DB 67°F, WB 57°F | DB 0°F * |

* In case of the wind baffle is installed.

(In case of the wind baffle is not installed, the minimum temperature will be DB 23°F.)

1. PERFORMANCE DATA

1) COOLING CAPACITY

| Models | Indoor air | | | Outdoor intake air DB temperature(°F) | | | | | | | | | | | | | | |
|---------|------------------|---------------|-------------|---------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | Airflow (CFM) | | IWB (°F) | 75 | | | 85 | | | 95 | | | 105 | | | 115 | | |
| | B.F | | | TC | SHC | TPC | TC | SHC | TPC | TC | SHC | TPC | TC | SHC | TPC | TC | SHC | TPC |
| PK12FK3 | 490 | DB 80°F | 71 | 14.5 | 9.8 | 1.05 | 14.0 | 9.5 | 1.14 | 13.5 | 9.1 | 1.24 | 12.8 | 8.7 | 1.35 | 12.2 | 8.3 | 1.45 |
| | | | 67 | 13.6 | 11.0 | 1.03 | 13.1 | 10.6 | 1.12 | 12.5 | 10.1 | 1.21 | 11.9 | 9.6 | 1.31 | 11.3 | 9.2 | 1.40 |
| | | | 63 | 12.7 | 12.0 | 1.01 | 12.2 | 11.5 | 1.09 | 11.6 | 10.9 | 1.18 | 11.1 | 10.5 | 1.27 | 10.5 | 9.9 | 1.36 |
| | 0.18 | DB75°F(50%RH) | 62.5 | 12.6 | 10.7 | 1.01 | 12.1 | 10.3 | 1.09 | 11.5 | 9.8 | 1.17 | 11.0 | 9.3 | 1.26 | 10.4 | 8.8 | 1.35 |
| | | DB72°F(50%RH) | 60 | 12.0 | 10.4 | 0.99 | 11.5 | 10.0 | 1.07 | 11.0 | 9.5 | 1.15 | 10.4 | 9.0 | 1.24 | 9.9 | 8.6 | 1.32 |
| | | DB70°F(50%RH) | 59 | 11.8 | 10.1 | 0.99 | 11.3 | 9.7 | 1.06 | 10.8 | 9.2 | 1.15 | 10.2 | 8.7 | 1.23 | 9.7 | 8.3 | 1.31 |
| PK18FK3 | 710 | DB 80°F | 71 | 21.5 | 14.8 | 1.52 | 20.8 | 14.3 | 1.65 | 19.9 | 13.7 | 1.80 | 19.0 | 13.0 | 1.95 | 18.1 | 12.4 | 2.10 |
| | | | 67 | 20.1 | 16.5 | 1.49 | 19.3 | 15.8 | 1.61 | 18.5 | 15.2 | 1.75 | 17.6 | 14.4 | 1.89 | 16.7 | 13.7 | 2.03 |
| | | | 63 | 18.8 | 17.9 | 1.46 | 18.0 | 17.2 | 1.57 | 17.2 | 16.4 | 1.70 | 16.4 | 15.6 | 1.83 | 15.5 | 14.8 | 1.96 |
| | 0.14 | DB75°F(50%RH) | 62.5 | 18.6 | 16.0 | 1.45 | 17.9 | 15.4 | 1.57 | 17.1 | 14.7 | 1.70 | 16.2 | 13.9 | 1.83 | 15.4 | 13.2 | 1.96 |
| | | DB72°F(50%RH) | 60 | 17.8 | 15.6 | 1.43 | 17.1 | 15.0 | 1.55 | 16.3 | 14.3 | 1.67 | 15.5 | 13.6 | 1.79 | 14.6 | 12.8 | 1.92 |
| | | DB70°F(50%RH) | 59 | 17.4 | 15.0 | 1.43 | 16.7 | 14.4 | 1.54 | 16.0 | 13.8 | 1.66 | 15.1 | 13.1 | 1.78 | 14.3 | 12.4 | 1.90 |
| PK24FK3 | 710 | DB 80°F | 71 | 27.9 | 16.4 | 2.04 | 26.9 | 15.8 | 2.21 | 25.8 | 15.1 | 2.40 | 24.6 | 14.4 | 2.61 | 23.4 | 13.7 | 2.81 |
| | | | 67 | 26.1 | 18.8 | 1.99 | 25.1 | 18.1 | 2.16 | 24.0 | 17.3 | 2.34 | 22.9 | 16.5 | 2.53 | 21.7 | 15.6 | 2.71 |
| | | | 63 | 24.3 | 20.7 | 1.95 | 23.4 | 20.0 | 2.11 | 22.4 | 19.1 | 2.28 | 21.3 | 18.2 | 2.45 | 20.1 | 17.2 | 2.62 |
| | 0.14 | DB75°F(50%RH) | 62.5 | 24.1 | 18.3 | 1.94 | 23.2 | 17.6 | 2.10 | 22.2 | 16.8 | 2.27 | 21.1 | 16.0 | 2.44 | 19.9 | 15.1 | 2.62 |
| | | DB72°F(50%RH) | 60 | 23.0 | 17.8 | 1.92 | 22.1 | 17.1 | 2.07 | 21.1 | 16.4 | 2.23 | 20.0 | 15.5 | 2.40 | 18.9 | 14.7 | 2.56 |
| | | DB70°F(50%RH) | 59 | 22.6 | 17.3 | 1.91 | 21.7 | 16.6 | 2.05 | 20.7 | 15.8 | 2.22 | 19.6 | 15.0 | 2.38 | 18.5 | 14.1 | 2.54 |
| PK30FK3 | 990 | DB 80°F | 71 | 34.9 | 21.5 | 2.66 | 33.7 | 20.8 | 2.89 | 32.3 | 19.9 | 3.14 | 30.8 | 19.0 | 3.41 | 29.3 | 18.1 | 3.68 |
| | | | 67 | 32.6 | 24.5 | 2.61 | 31.4 | 23.6 | 2.82 | 30.0 | 22.5 | 3.06 | 28.6 | 21.5 | 3.30 | 27.1 | 20.3 | 3.54 |
| | | | 63 | 30.4 | 26.9 | 2.55 | 29.2 | 25.8 | 2.75 | 27.9 | 24.6 | 2.98 | 26.6 | 23.5 | 3.21 | 25.1 | 22.2 | 3.43 |
| | 0.15 | DB75°F(50%RH) | 62.5 | 30.2 | 23.8 | 2.54 | 29.0 | 22.9 | 2.75 | 27.7 | 21.9 | 2.97 | 26.3 | 20.7 | 3.20 | 24.9 | 19.6 | 3.42 |
| | | DB72°F(50%RH) | 60 | 28.8 | 23.2 | 2.51 | 27.7 | 22.3 | 2.70 | 26.4 | 21.3 | 2.92 | 25.1 | 20.2 | 3.14 | 23.7 | 19.1 | 3.35 |
| | | DB70°F(50%RH) | 59 | 28.3 | 22.5 | 2.49 | 27.1 | 21.5 | 2.69 | 25.9 | 20.6 | 2.90 | 24.6 | 19.5 | 3.11 | 23.2 | 18.4 | 3.32 |
| PK36FK3 | 990 | DB 80°F | 71 | 39.8 | 23.0 | 3.02 | 38.4 | 22.1 | 3.28 | 36.8 | 21.2 | 3.57 | 35.1 | 20.2 | 3.87 | 33.4 | 19.3 | 4.17 |
| | | | 67 | 37.1 | 26.3 | 2.96 | 35.7 | 25.3 | 3.20 | 34.2 | 24.3 | 3.47 | 32.6 | 23.1 | 3.74 | 30.9 | 21.9 | 4.02 |
| | | | 63 | 34.7 | 29.3 | 2.89 | 33.3 | 28.1 | 3.12 | 31.9 | 26.9 | 3.38 | 30.3 | 25.6 | 3.64 | 28.7 | 24.2 | 3.89 |
| | 0.15 | DB75°F(50%RH) | 62.5 | 34.4 | 25.8 | 2.88 | 33.1 | 24.8 | 3.11 | 31.6 | 23.7 | 3.37 | 30.0 | 22.5 | 3.63 | 28.4 | 21.3 | 3.88 |
| | | DB72°F(50%RH) | 60 | 32.8 | 25.1 | 2.84 | 31.5 | 24.1 | 3.07 | 30.1 | 23.0 | 3.31 | 28.6 | 21.9 | 3.56 | 27.0 | 20.7 | 3.80 |
| | | DB70°F(50%RH) | 59 | 32.2 | 24.3 | 2.83 | 30.9 | 23.3 | 3.05 | 29.5 | 22.3 | 3.29 | 28.0 | 21.1 | 3.53 | 26.4 | 19.9 | 3.77 |

Notes 1. B.F. : Bypass Factor, IWB : Intake air wet-bulb temperature

TC : Total Capacity (x10³ Btu/h), SHC : Sensible Heat Capacity (x10³ Btu/h)

TPC : Total Power Consumption (kW)

2. Cooling capacity correction factors and Refrigerant piping length (one way) range.

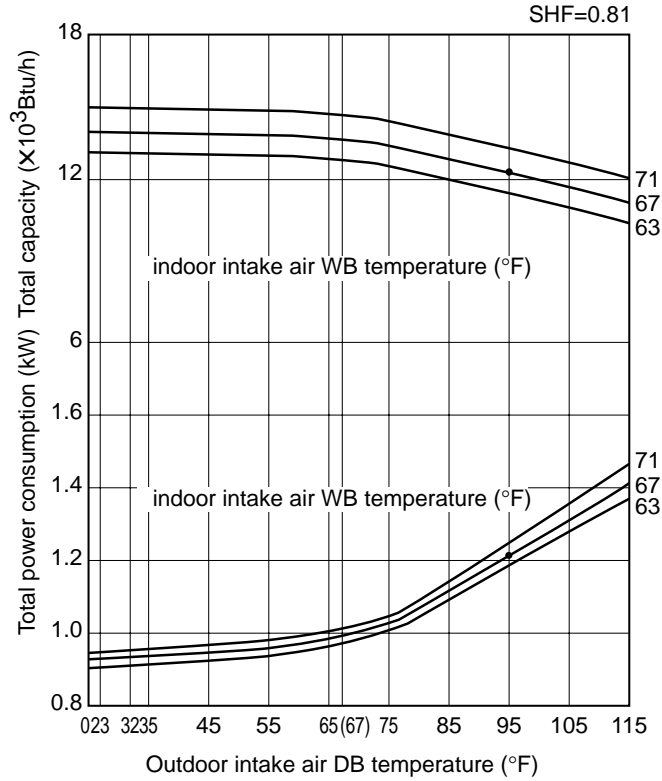
2) COOLING CAPACITY CORRECTIONS

| MODEL | Refrigerant piping length (one way) | | | | | | | | | |
|---------|-------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 25ft | 40ft | 55ft | 70ft | 85ft | 100ft | 115ft | 130ft | 150ft | 164ft |
| PK12FK3 | 1.0 | 0.992 | 0.983 | 0.978 | 0.966 | 0.959 | 0.950 | 0.945 | — | — |
| PK18FK3 | 1.0 | 0.992 | 0.983 | 0.978 | 0.966 | 0.959 | 0.950 | 0.945 | — | — |
| PK24FK3 | 1.0 | 0.981 | 0.968 | 0.952 | 0.940 | 0.925 | 0.913 | 0.900 | 0.886 | 0.874 |
| PK30FK3 | 1.0 | 0.981 | 0.968 | 0.952 | 0.940 | 0.925 | 0.913 | 0.900 | 0.886 | 0.874 |
| PK36FK3 | 1.0 | 0.981 | 0.968 | 0.952 | 0.940 | 0.925 | 0.913 | 0.900 | 0.886 | 0.874 |

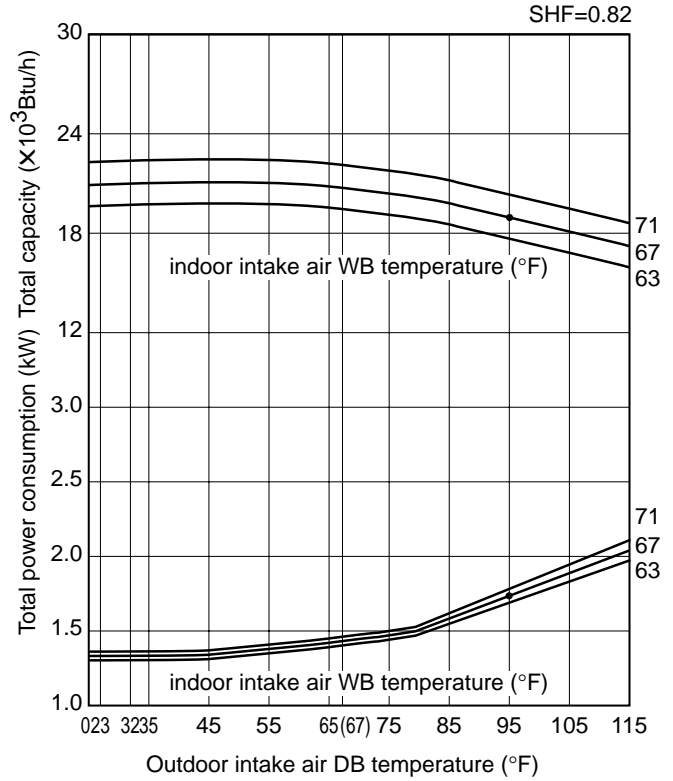
2. PERFORMANCE CURVE

NOTE : A point on the curve shows the reference point.

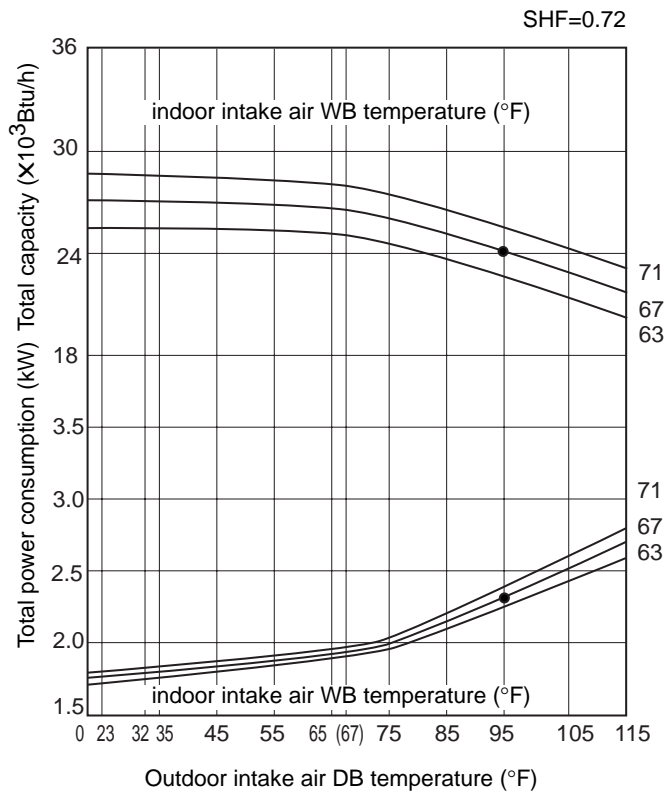
PK12FK3 COOLING CAPACITY



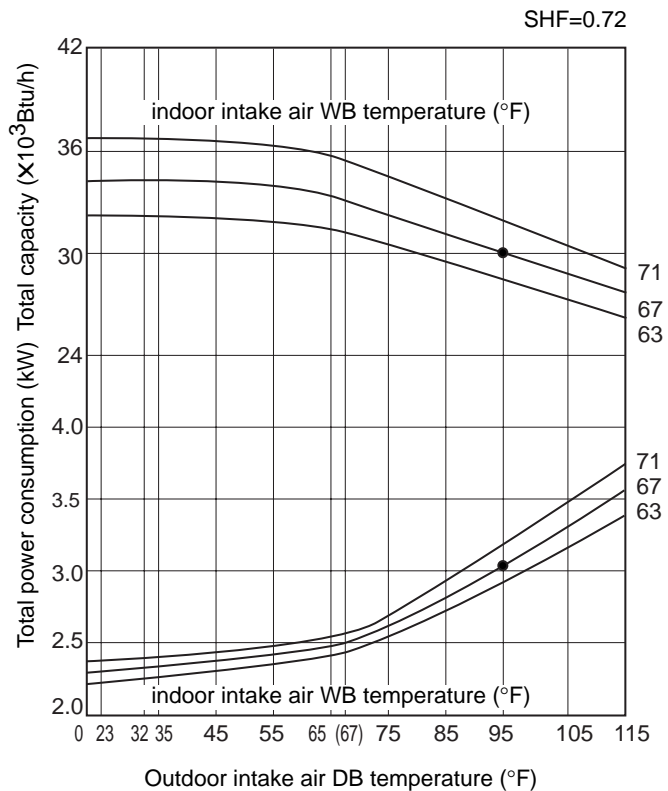
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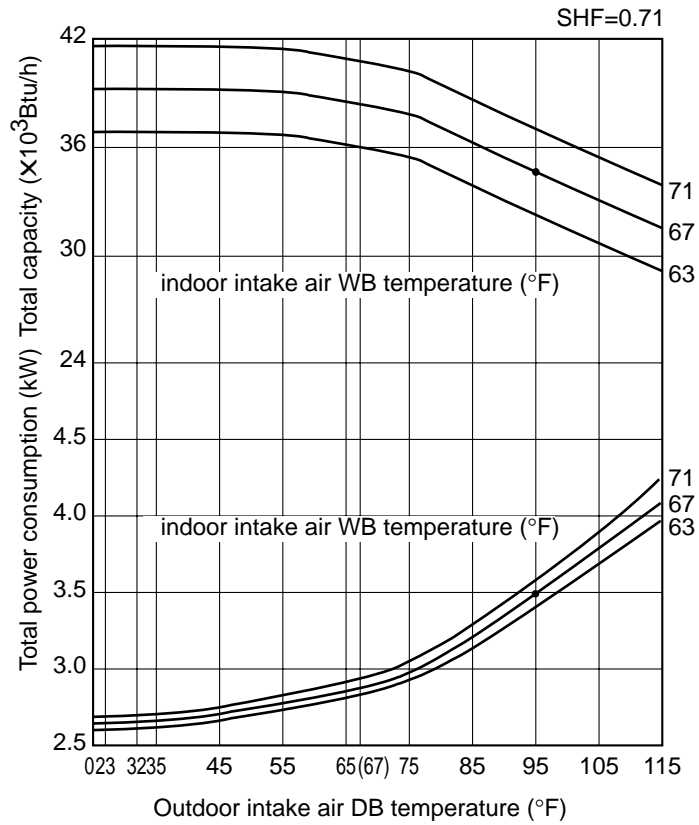
PK24FK3 COOLING CAPACITY



PK30FK3 COOLING CAPACITY



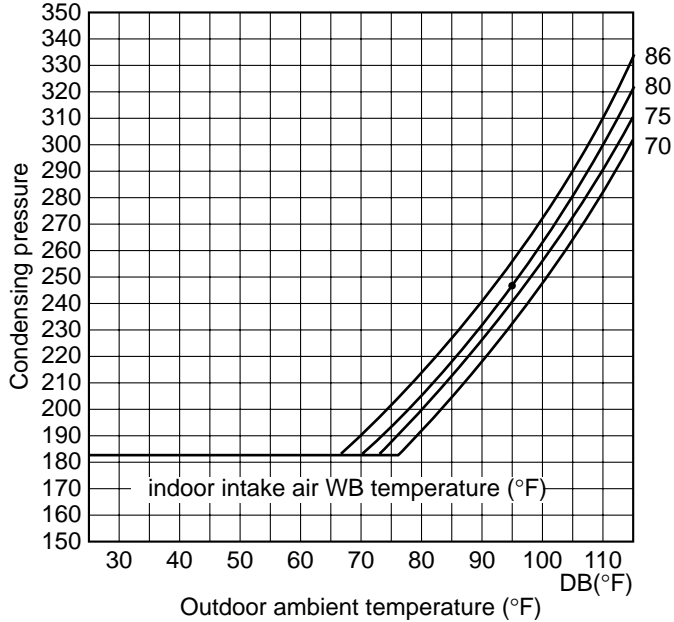
PK36FK3 COOLING CAPACITY



Data is based on the condition under indoor humidity 50%.
Air flow should be set at HI.
A point on the curve shows the reference point.

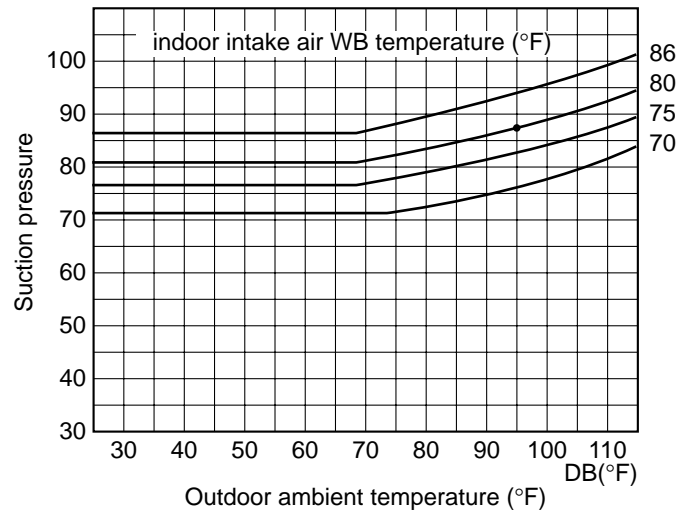
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[psi. G] PK12FK3

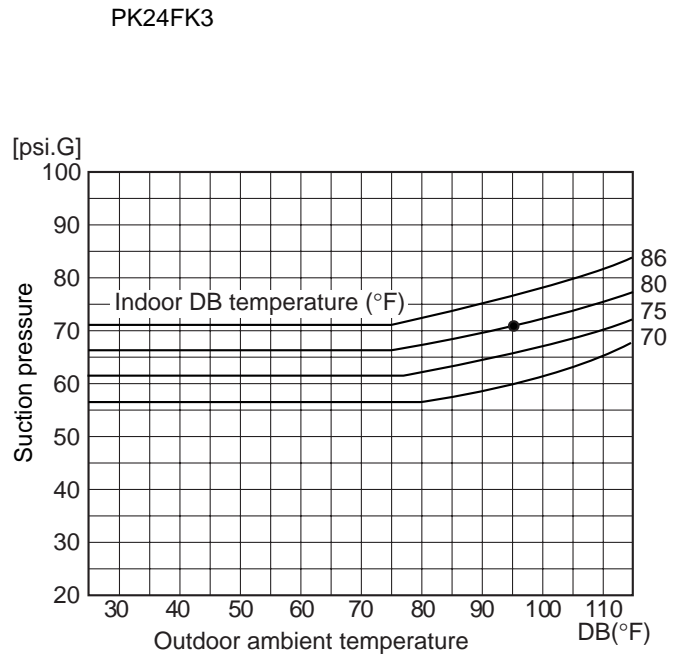
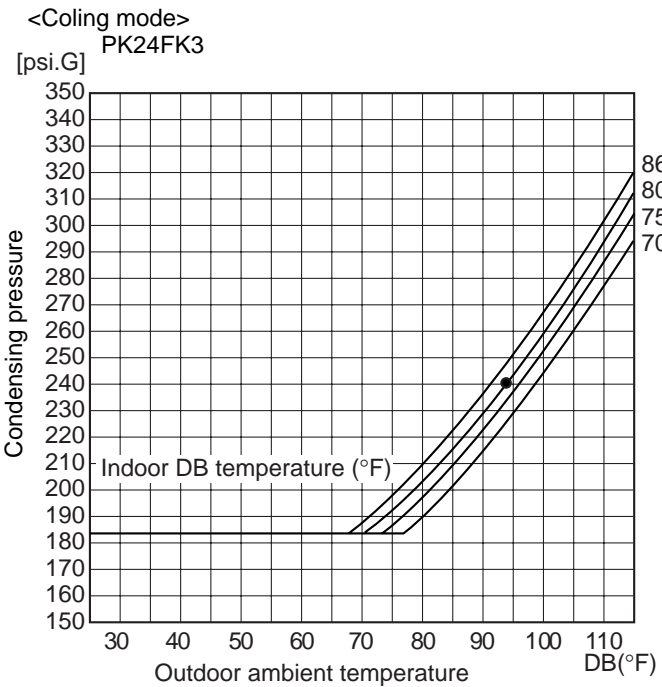
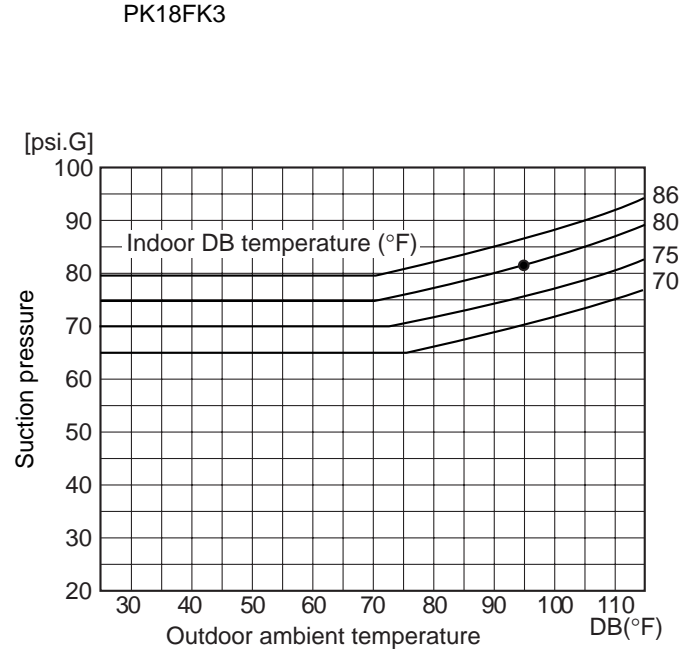
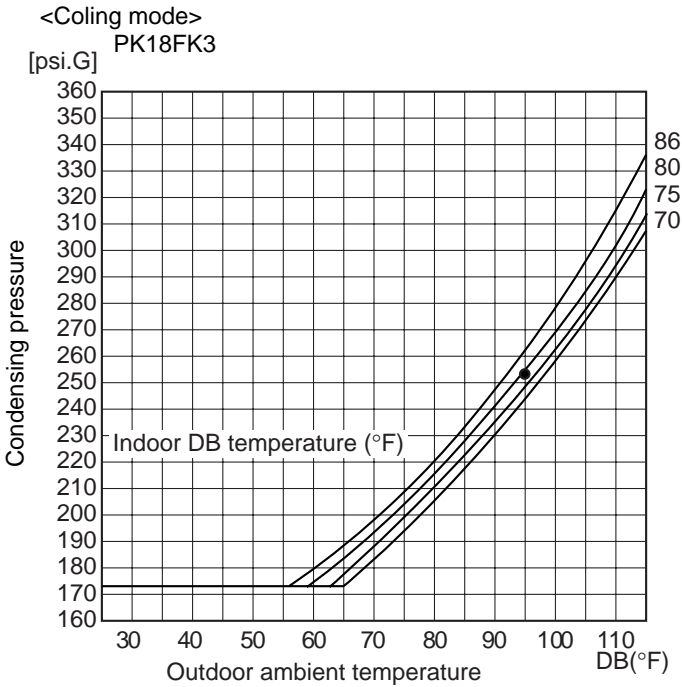


PK12FK3

[psi. G]

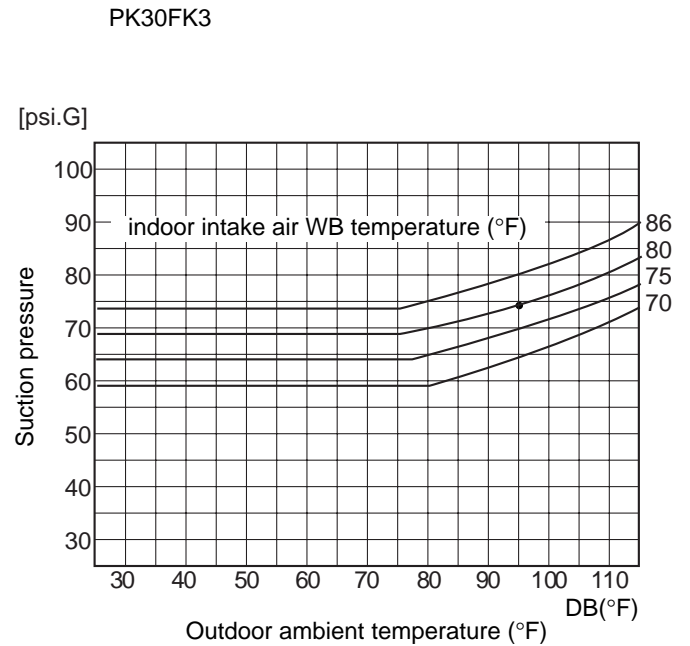
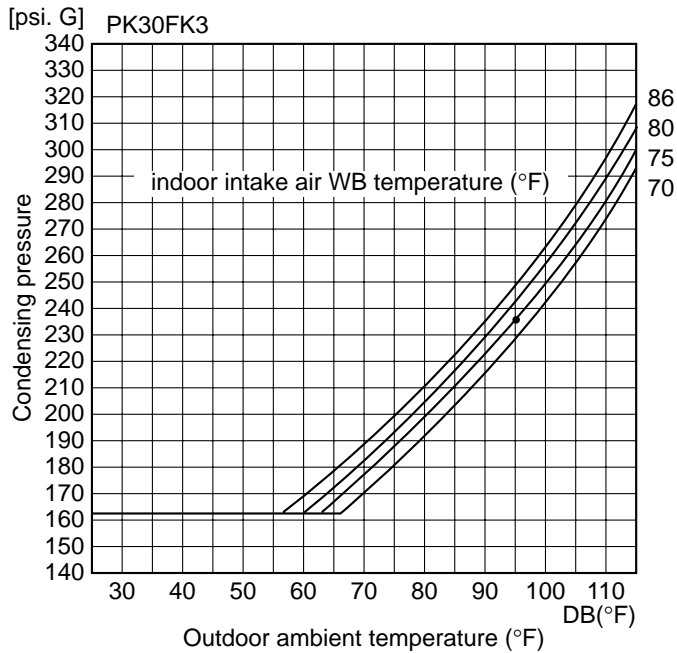


Data is based on the condition under indoor humidity 50%.
Air flow should be set at HI.
A point on the curve shows the reference point.

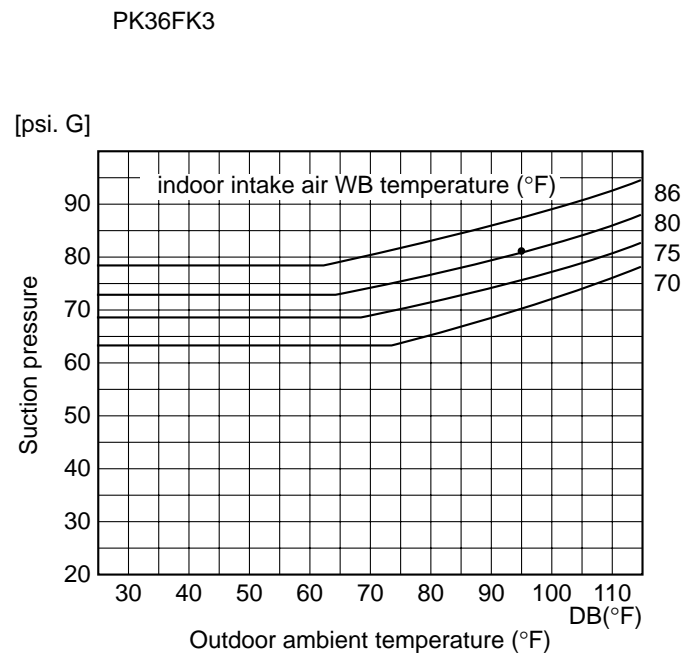
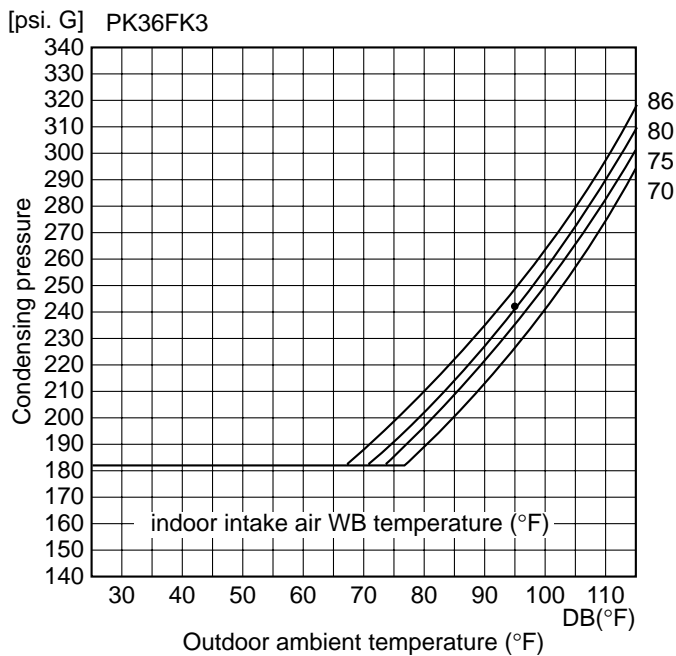


Data is based on the condition under indoor humidity 50%.
 Air flow should be set at HI.
 A point on the curve shows the reference point.

<Cooling mode>



<Cooling mode>





3. STANDARD OPERATION DATA

| Model | | | PK12FK3 | PK18FK3 | PK24FK3 | PK30FK3 | PK36FK3 |
|---------------------|-----------------------------|---------|----------------|---------------------|---------------------|---------------------|---------------------|
| Item | | Unit | Cooling | Cooling | Cooling | Cooling | Cooling |
| Total | Capacity | Btu / t | 12,500 | 18,500 | 24,000 | 30,000 | 34,200 |
| | SHF | — | 0.81 | 0.82 | 0.72 | 0.75 | 0.71 |
| | Input | kW | 1.21 | 1.75 | 2.34 | 3.06 | 3.47 |
| Electrical circuit | INDOOR UNIT MODEL | | PK12FK3 | PK18FK3 | PK24FK3 | PK30FK3 | PK36FK3 |
| | Power supply (V, phase, Hz) | | 115, 1, 60 | 115, 1, 60 | 115, 1, 60 | 115, 1, 60 | 115, 1, 60 |
| | Input | kW | 0.07 | 0.09 | 0.09 | 0.12 | 0.12 |
| | Fan current | A | 0.7 | 0.7 | 0.7 | 1.0 | 1.0 |
| | OUTDOOR UNIT MODEL | | PU12EK | PU18EK ₁ | PU24EK ₁ | PU30EK ₁ | PU36EK ₁ |
| | Power supply (V, phase, Hz) | | 208/230, 1, 60 | 208/230, 1, 60 | 208/230, 1, 60 | 208/230, 1, 60 | 208/230, 1, 60 |
| | Input | kW | 1.14 | 1.66 | 2.25 | 2.94 | 3.35 |
| | Comp. current | A | 8.9 | 12.0 | 11.5 | 14.0 | 17.5 |
| | Fan current | A | 0.65 | 0.75 | 0.65+0.65 | 0.65+0.65 | 0.75+0.75 |
| Refrigerant circuit | Condensing pressure | psi-G | 247 | 255 | 240 | 247 | 247 |
| | Suction pressure | psi-G | 87 | 82 | 74 | 77 | 73 |
| | Discharge temp. | °F | 155 | 171 | 155 | 163 | 163 |
| | Condensing temp. | °F | 116 | 118 | 114 | 116 | 116 |
| | Suction temp. | °F | 52 | 51 | 44 | 46 | 43 |
| | Ref. pipe length | ft | 25 | 25 | 25 | 25 | 25 |
| | Refrigerant charge | — | 4 lbs 14oz | 5 lbs 8 oz | 9 lbs 15 oz | 10 lbs 2 oz | 10 lbs 9 oz |
| Indoor side | Intake air temperature | DB | °F | 80 | 80 | 80 | 80 |
| | | WB | °F | 67 | 67 | 67 | 67 |
| | Discharge air temperature | DB | °F | 61 | 61 | 58 | 58 |
| | | WB | °F | 59 | 59 | 56 | 56 |
| | Fan speed (High) | rpm | 1,420 | 1,300 | 1,300 | 1,380 | 1,380 |
| | Airflow (High) | CFM | 490 | 710 | 710 | 990 | 990 |
| Outdoor side | Intake air temperature | DB | °F | 95 | 95 | 95 | 95 |
| | | WB | °F | 75 | 75 | 75 | 75 |
| | Fan speed upper / lower | rpm | 790 | 790 | 750 750 | 750 750 | 760 760 |
| | Airflow | CFM | 1,590 | 1,590 | 3,170 | 3,170 | 3,350 |

4. OPERATING RANGE

1) POWER SUPPLY

| | Rating | Allowable voltage |
|--------------|-----------------------|-----------------------|
| Indoor unit | 115V 1 phase 60Hz | Min. 103V — Max. 127V |
| Outdoor unit | 208/230V 1 phase 60Hz | Min. 198V — Max. 253V |

2) OPERATION

| Function | Intake air temperature Condition | Indoor | | Outdoor | |
|----------|-------------------------------------|---------|---------|---------|---------|
| | | DB (°F) | WB (°F) | DB (°F) | WB (°F) |
| Cooling | Standard temperature | 80 | 67 | 95 | 75 |
| | Maximum temperature | 95 | 71 | 115 | 75 |
| | Minimum temperature | 67 | 57 | 0 | — |
| | Maximum humidity | 80 | 75 | 80 | 75 |

5. OUTLET AIR SPEED AND COVERAGE RANGE

| | | PK12FK3 | PK18FK3 | PK24FK3 | PK30FK3 | PK36FK3 |
|-------------------------------|-----------------------|---------|---------|---------|---------|---------|
| Standard height (8.2ft) | Airflow (CFM) | 490 | 710 | 710 | 990 | 990 |
| | Air speed (ft / sec.) | 14.1 | 16.1 | 16.1 | 17.7 | 17.7 |
| | Coverage range (ft) | 32 | 41 | 41 | 50 | 50 |

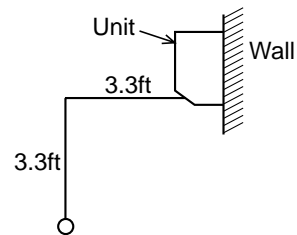
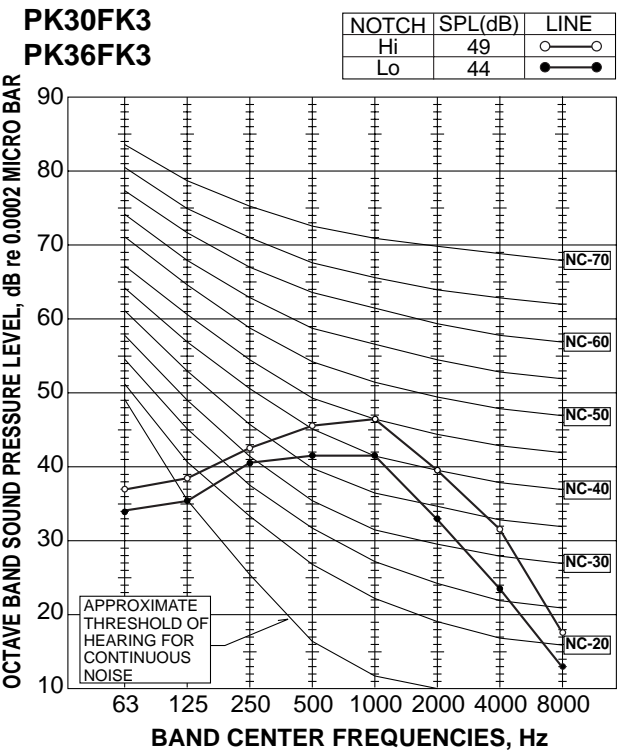
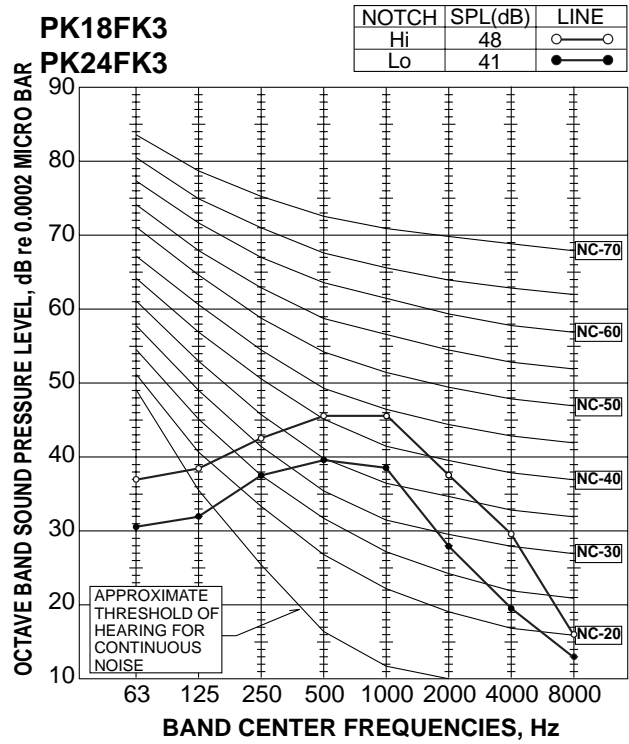
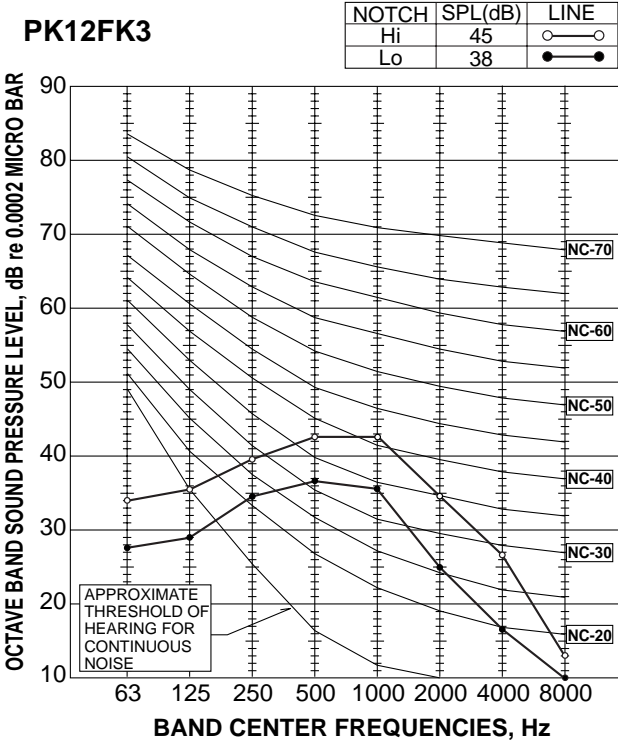
- The air coverage range is the value up to the position where the air speed is 0.8ft/sec. when air is blown out horizontally from the unit at the High fan setting.

The coverage range should be used only as a general guideline since it varies according to the size of the room and furniture installed inside the room.

6. ADDITIONAL REFRIGERANT CHARGE (R22 (oz))

| Model | Outdoor unit precharged (up to 100ft) | Refrigerant piping length (over way) | | | | | | | | | |
|---------|---|--------------------------------------|------|------|------|------|-------|-------|-------|-------|-------|
| | | 25ft | 40ft | 55ft | 70ft | 85ft | 100ft | 115ft | 130ft | 150ft | 164ft |
| PK12FK3 | 4 lbs 14 oz | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | — | — |
| PK18FK3 | 5 lbs 8 oz | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | — | — |
| PK24FK3 | 9 lbs 15 oz | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 7 | 9 |
| PK30FK3 | 10 lbs 2 oz | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 10 | 16 | 20 |
| PK36FK3 | 10 lbs 9 oz | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 10 | 16 | 20 |

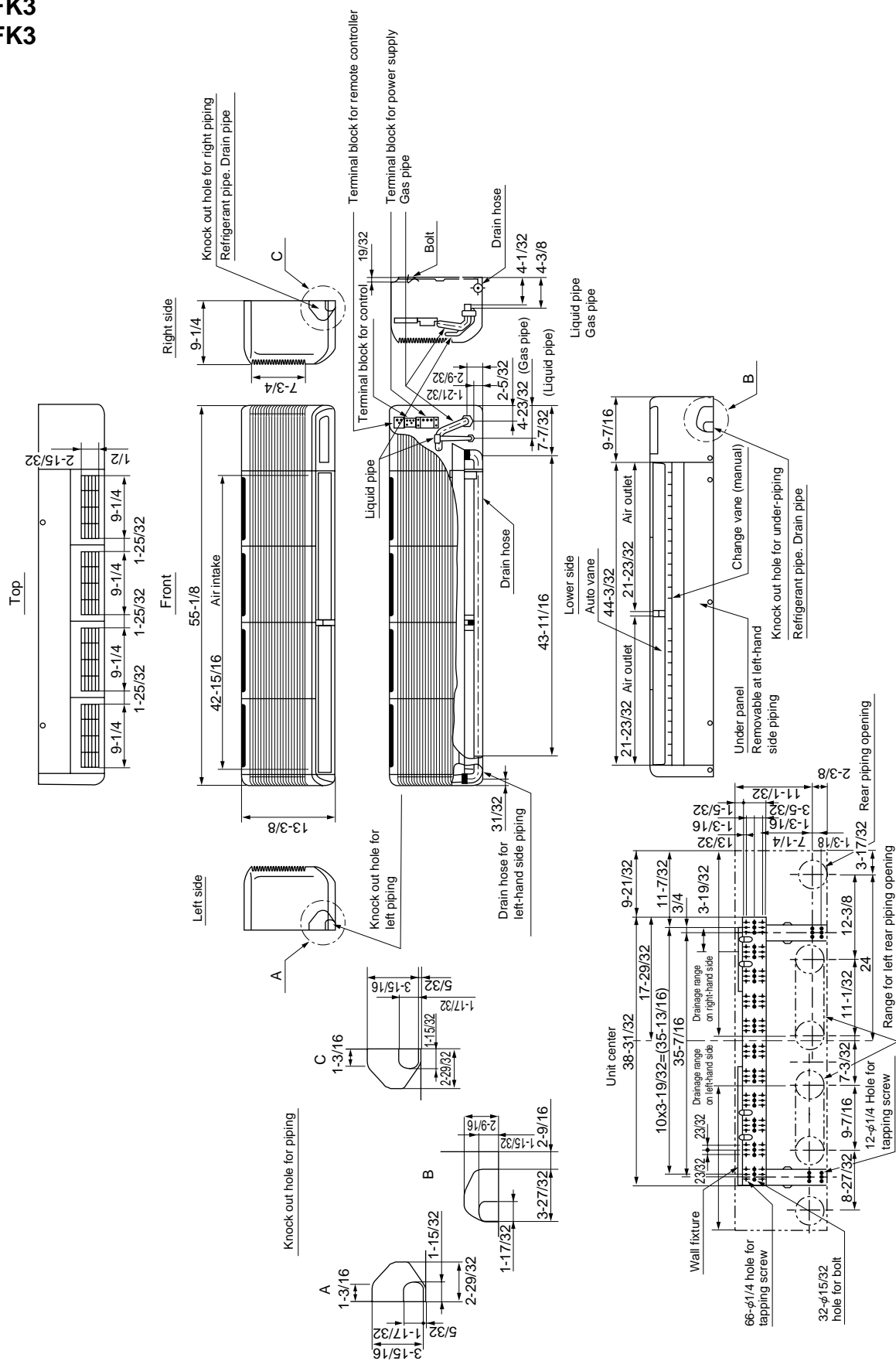
6. NOISE CRITERION CURVES

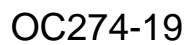


Ambient temperature 80°F
Test conditions are based on JIS Z8731

[illegible]

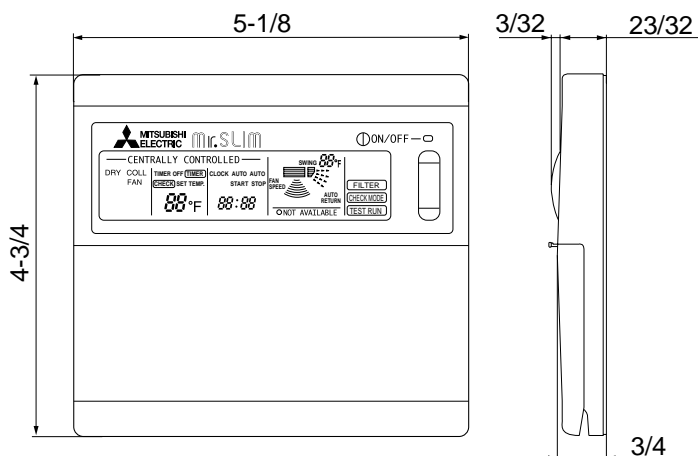
PK18FK3
PK24FK3





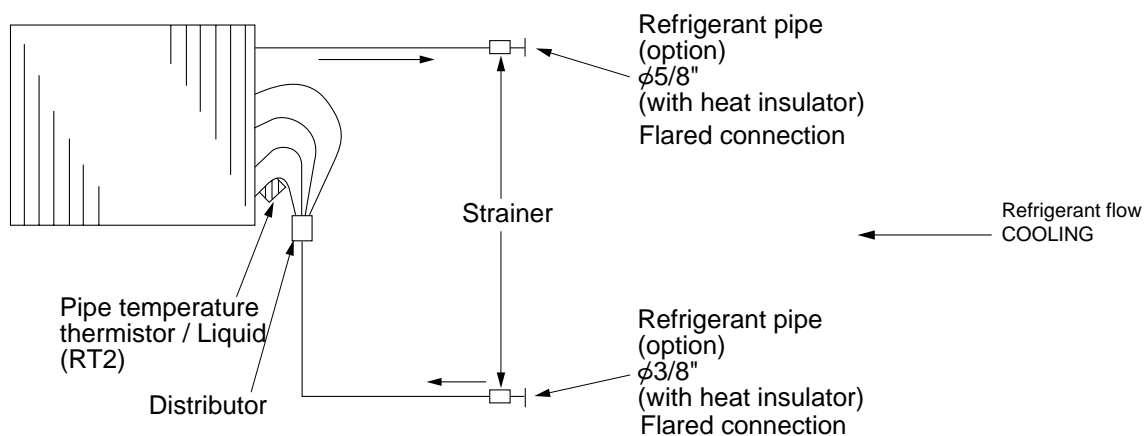
Remote controller

Unit : inch

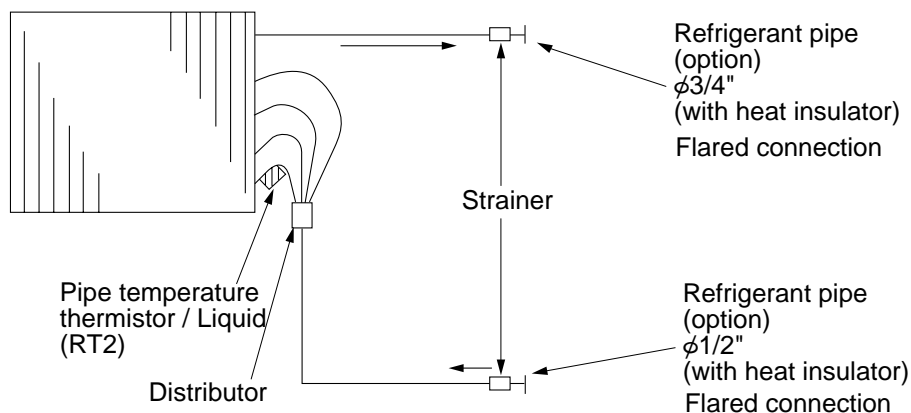


7 REFRIGERANT SYSTEM DIAGRAM

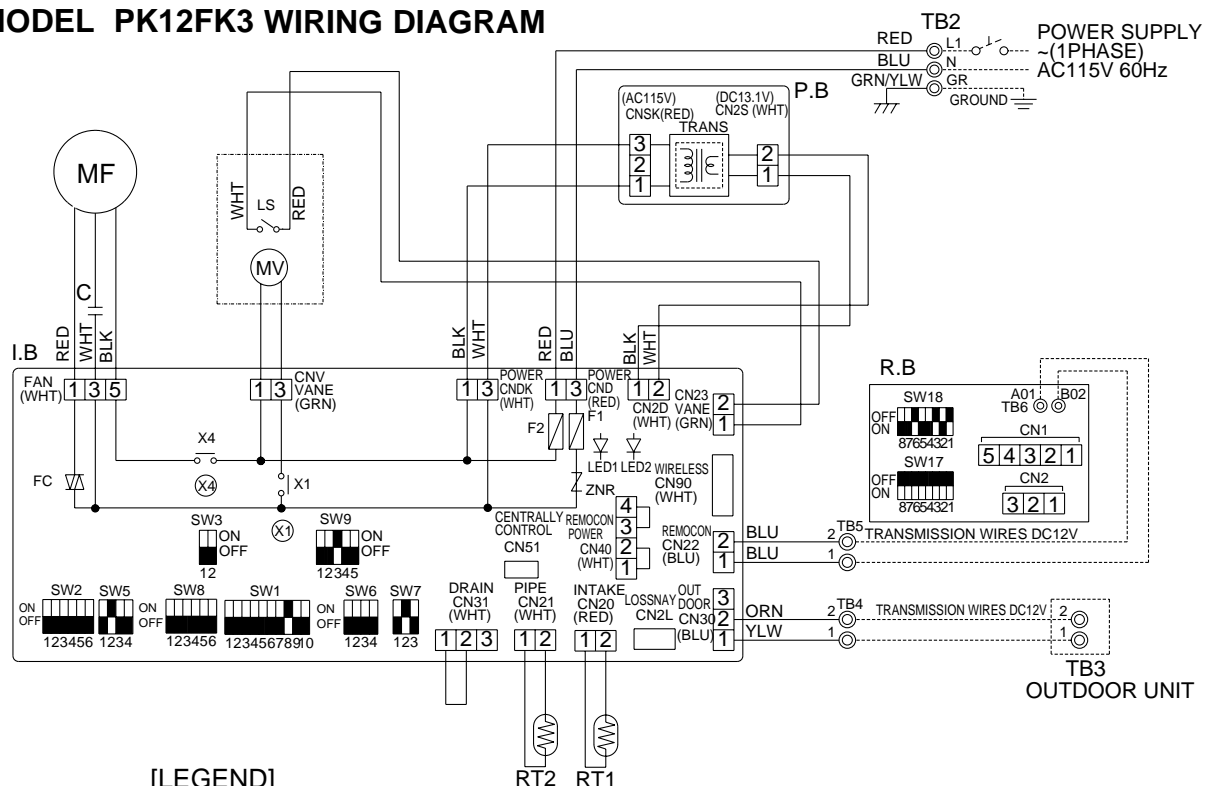
PK12FK3
PK18FK3
PK24FK3



PK30FK3
PK36FK3



MODEL PK12FK3 WIRING DIAGRAM



[LEGEND]

| SYMBOL | NAME | SYMBOL | NAME |
|--------|------------------------------|---------|---|
| P.B | INDOOR POWER BOARD | C | CAPACITOR(FAN MOTOR) |
| I.B | INDOOR CONTROLLER BOARD | MF | FAN MOTOR |
| CN2L | CONNECTOR(LOSSNAY) | MV | VANE MOTOR |
| CN51 | CONNECTOR(CENTRALLY CONTROL) | LS | LIMIT SWITCH |
| FC | FAN PHASE CONTROL | TB2~TB6 | TERMINAL BLOCK |
| SW1 | SWITCH(FUNCTION SELECTOR) | RT1 | ROOM TEMP.THERMISTOR (32°F/15kΩ, 77°F/5.4kΩ DETECT) |
| SW2 | SWITCH(ADDRESS SELECTOR) | RT2 | PIPE TEMP.THERMISTOR/LIQUID (32°F/15kΩ, 77°F/5.4kΩ DETECT) |
| SW3 | SWITCH(EMERGENCY OPERATION) | R.B | REMOTE CONTROLLER BOARD |
| SW5 | SWITCH(MODEL SELECTOR) | CN1 | CONNECTOR(PROGRAM TIMER) |
| SW6 | SWITCH(TWIN/TRIPLE SELECTOR) | CN2 | CONNECTOR(REMOTE SWITCH) |
| SW7 | SWITCH(MODEL SELECTOR) | SW17 | SWITCH(ADDRESS SELECTOR) |
| SW8 | SWITCH(OPTION) | SW18 | SWITCH(FUNCTION SELECTOR) |
| SW9 | SWITCH(MODEL SELECTOR) | | |
| X1 | RELAY(VANE MOTOR) | | |
| X4 | RELAY(FAN MOTOR) | | |
| F1,F2 | FUSE(6A/250V) | | |
| ZNR | VARIATOR | | |
| LED1 | LED(DC12V POWER) | | |
| LED2 | LED(DC5V POWER) | | |

NOTES:

1. Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.
2. Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers.
3. Symbols used in wiring diagram above are, :Connector, :Terminal block.
4. Emergency operation
If remote controller or microcomputer fails but there is no other trouble, emergency operation is possible by setting dip switch(SW3<I.B>) on the indoor controller board.

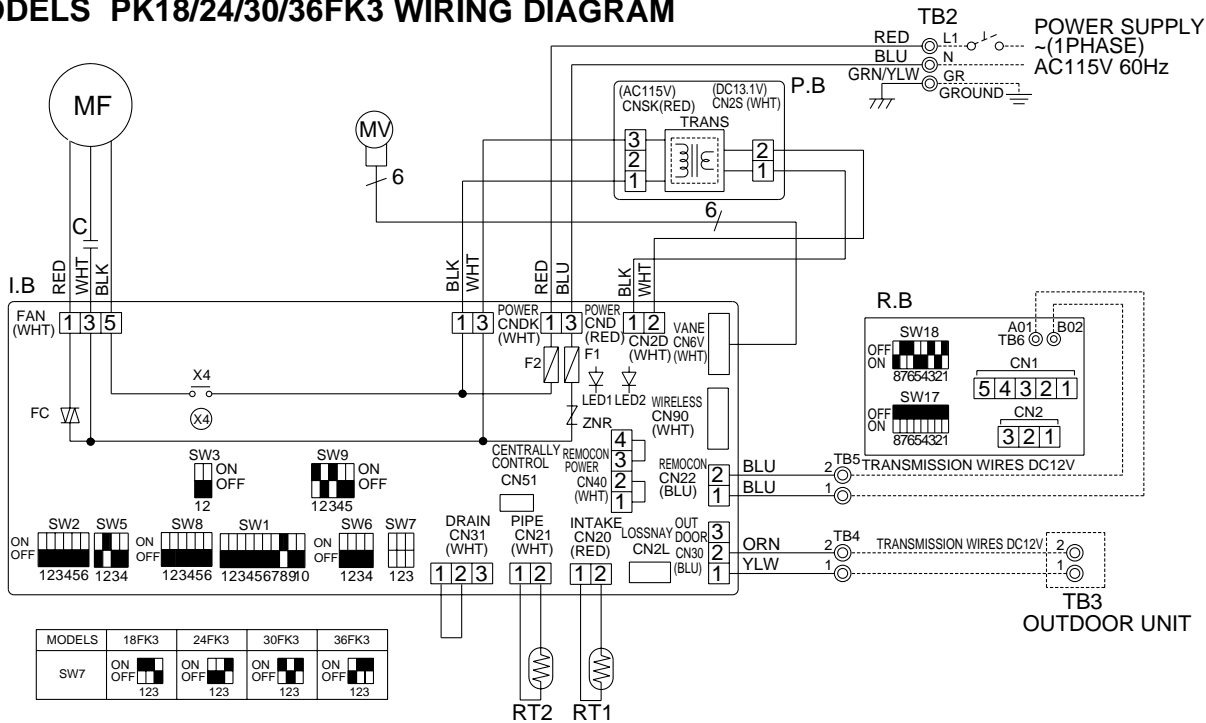
[Check items]

- (1) Make sure that no other trouble exist the outdoor unit. Trouble with the outdoor unit prevents emergency operation.
(If any trouble exists the outdoor unit error code "P8" will be displayed on the remote controller and the trouble position will be shown on the outdoor controller board LED. See electric wiring diagram of the outdoor unit for details.)
- (2) Make sure that there is no trouble with the indoor fan.
Emergency operation will be continuous run with the power ON/OFF (ON/OFF with the remote controller is not possible).

[Emergency operation procedure]

- (1) Set the dip switch(SW3<I.B>) on the indoor controller board to ① on and ② off for cooling.
- (2) Turn on outdoor unit side circuit breaker, then indoor unit side circuit breaker.
- (3) During emergency operation indoor fan runs at high speed but auto-vane does not work.
- (4) Thermostat will not function.
- (5) Emergency cooling should be limited to 10 hours maximum (the indoor unit heat exchanger may freeze).
- (6) After every emergency operation, set all dip switches(SW3<I.B>) to OFF.
- (7) Movement of the vanes does not work in emergency operation, therefore you have to slowly set them manually to the appropriate position.

MODELS PK18/24/30/36FK3 WIRING DIAGRAM



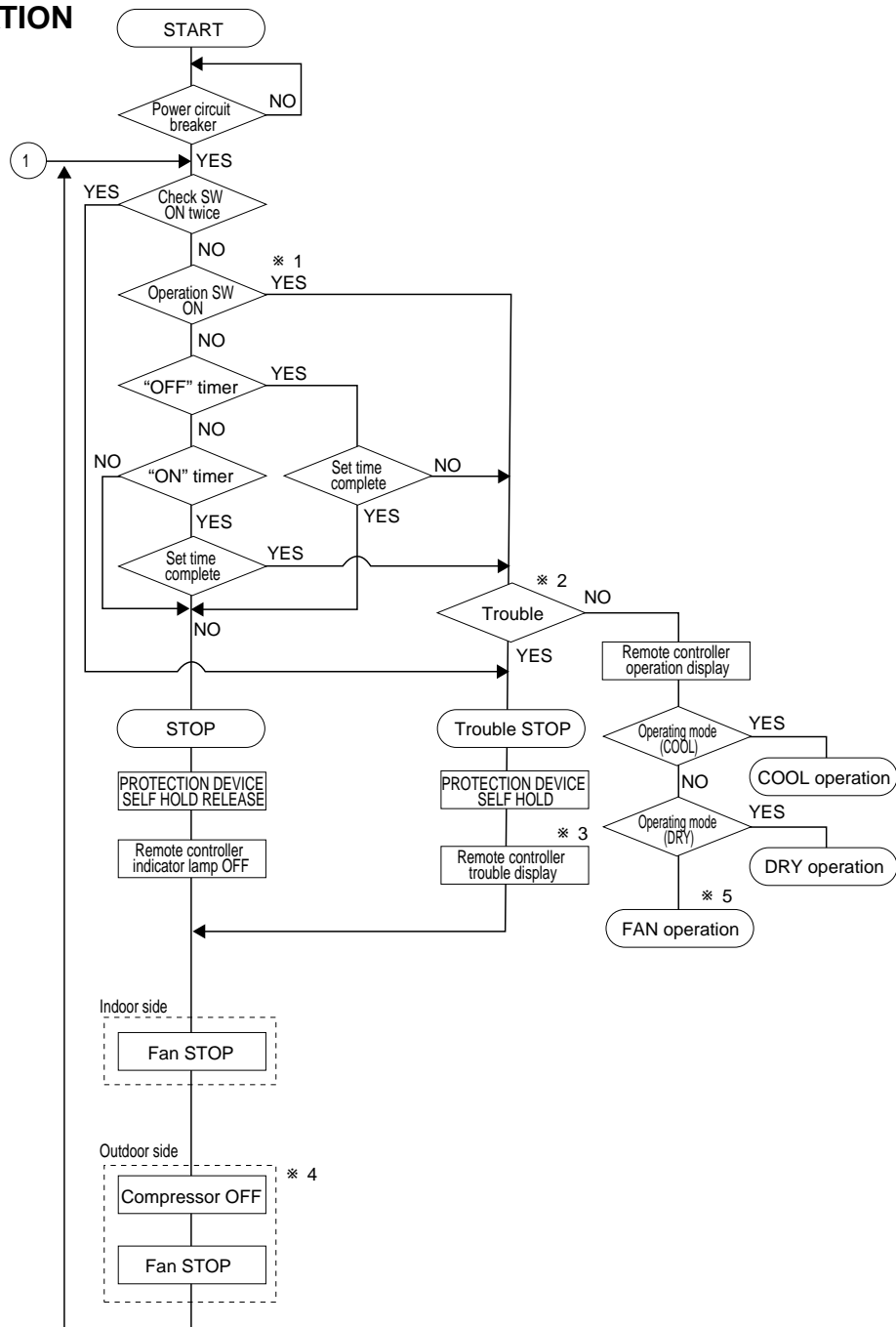
[LEGEND]

| SYMBOL | NAME | SYMBOL | NAME |
|--------|------------------------------|---------|--|
| P.B | INDOOR POWER BOARD | C | CAPACITOR(FAN MOTOR) |
| I.B | INDOOR CONTROLLER BOARD | MF | FAN MOTOR |
| CN2L | CONNECTOR(LOSSNAY) | MV | VANE MOTOR |
| CN51 | CONNECTOR(CENTRALLY CONTROL) | TB2~TB6 | TERMINAL BLOCK |
| FC | FAN PHASE CONTROL | RT1 | ROOM TEMP.THERMISTOR (32°F/15kΩ,77°F/5.4kΩ DETECT) |
| SW1 | SWITCH(FUNCTION SELECTOR) | RT2 | PIPE TEMP.THERMISTOR/LIQUID (32°F/15kΩ,77°F/5.4kΩ DETECT) |
| SW2 | SWITCH(ADDRESS SELECTOR) | R.B | REMOTE CONTROLLER BOARD |
| SW3 | SWITCH(EMERGENCY OPERATION) | CN1 | CONNECTOR(PROGRAM TIMER) |
| SW5 | SWITCH(MODEL SELECTOR) | CN2 | CONNECTOR(REMOTE SWITCH) |
| SW6 | SWITCH(TWIN/TRIPLE SELECTOR) | SW17 | SWITCH(ADDRESS SELECTOR) |
| SW7 | SWITCH(MODEL SELECTOR) | SW18 | SWITCH(FUNCTION SELECTOR) |
| SW8 | SWITCH(OPTION) | | |
| SW9 | SWITCH(MODEL SELECTOR) | | |
| X4 | RELAY(FAN MOTOR) | | |
| F1,F2 | FUSE(6A/250V) | | |
| ZNR | VARIATOR | | |
| LED1 | LED(DC12V POWER) | | |
| LED2 | LED(DC5V POWER) | | |

NOTES:

- Since the outdoor side electric wiring may change be sure to check the outdoor unit electric wiring for servicing.
 - Indoor and outdoor connecting wires are made with polarities, make wiring matching terminal numbers.
 - Symbols used in wiring diagram above are, :Connector, :Terminal block.
 - Emergency operation
If remote controller or microcomputer fails but there is no other trouble, emergency operation is possible by setting dip switch(SW3<I.B>) on the indoor controller board.
- [Check items]
- Make sure that no other trouble exist the outdoor unit.Trouble with the outdoor unit prevents emergency operation.
(If any trouble exists the outdoor unit error code"P8"will be displayed on the remote controller and the trouble position will be shown on the outdoor controller board LED. See electric wiring diagram of the outdoor unit for details.)
 - Make sure that there is no trouble with the indoor fan.
Emergency operation will be continuous run with the power ON/OFF(ON/OFF with the remote controller is not possible).
- [Emergency operation procedure]
- Set the dip switch(SW3<I.B>)on the indoor controller board to on and off for cooling.
 - Turn on outdoor unit side circuit breaker,then indoor unit side circuit breaker.
 - During emergency operation indoor fan runs at high speed but auto-vane does not work.
 - Thermostat will not function.
 - Emergency cooling should be limited to 10 hours maximum (the indoor unit heat exchanger may freeze).
 - After every emergency operation,set all dip switches(SW3<I.B>) to OFF.
 - Movement of the vanes does not work in emergency operation,therefore you have to slowly set them manually to the appropriate position.

MAIN OPERATION



※1 In addition, the centralised control and remote control can be operated.

*2 The modes which indicate the sources of trouble are listed below.

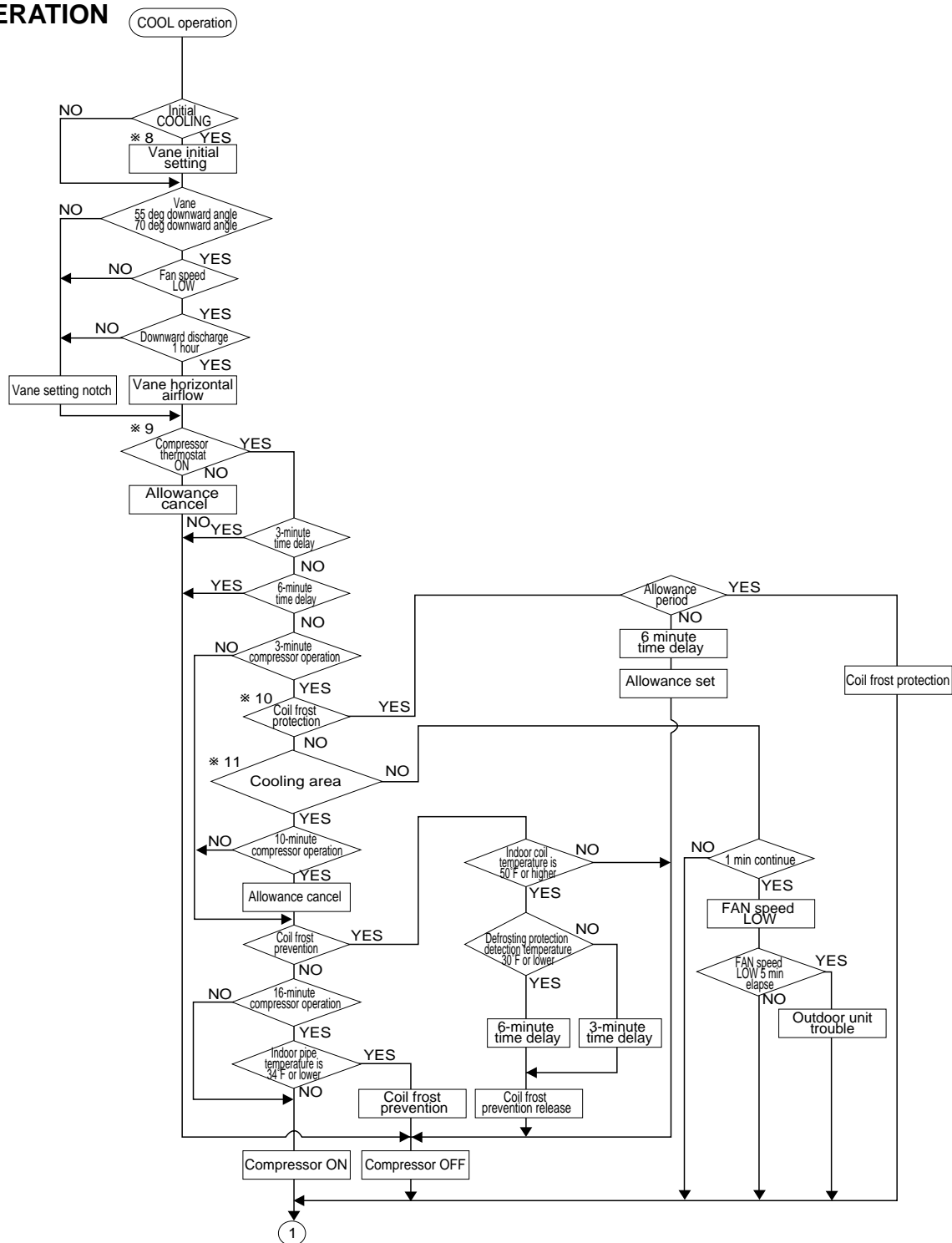
- EO-Signal transmitting/receiving error
- P1-Room temperature thermistor malfunction
- P2-Indoor coil thermistor malfunction
- P4-Drain sensor malfunction
- P5-Drain overflow
- P6-Coil frost/overheat protection
- P7-System error
- P8-Outdoor unit trouble

※3 The CHECK switch will show if an error has occurred in the past.

- ※4 The 3-minute time-delay functions after compressor stops.

※5 In FAN mode, fan speed and vane operation depend on the remote controller setting. (Compressor is OFF.)

COOLING OPERATION



※8 When operation stops or changes to cooling or dry mode, the auto vane turns to a horizontal angle. If operation changes during auto vane SWING, the auto vane will continue to swing.

※9 When operating TEST RUN, the thermostat will be continuously ON.

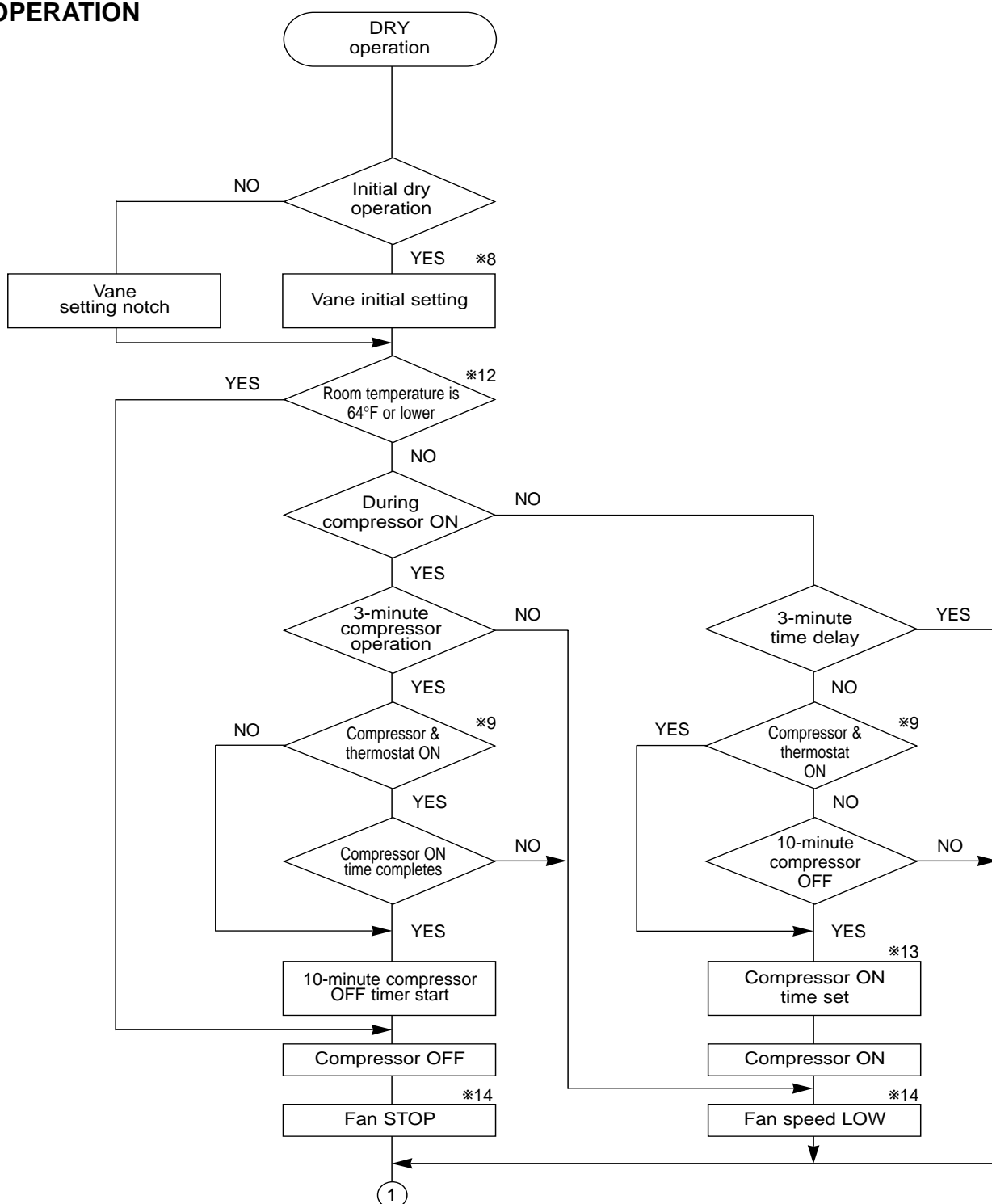
※10 After 3 minute compressor operation, if the indoor coil thermistor reads 5°F or below for 3 minutes, the compressor will stop for 6 minutes.

※11 Heating area : Indoor coil temperature is more than 9 degrees above the room temperature.

Cooling area : Indoor coil temperature is more than 9 degrees below the room temperature.

FAN area : Indoor coil temperature is within 9 degrees either way of the room temperature.

DRY OPERATION



*8—9 Refer to page OC274-24.

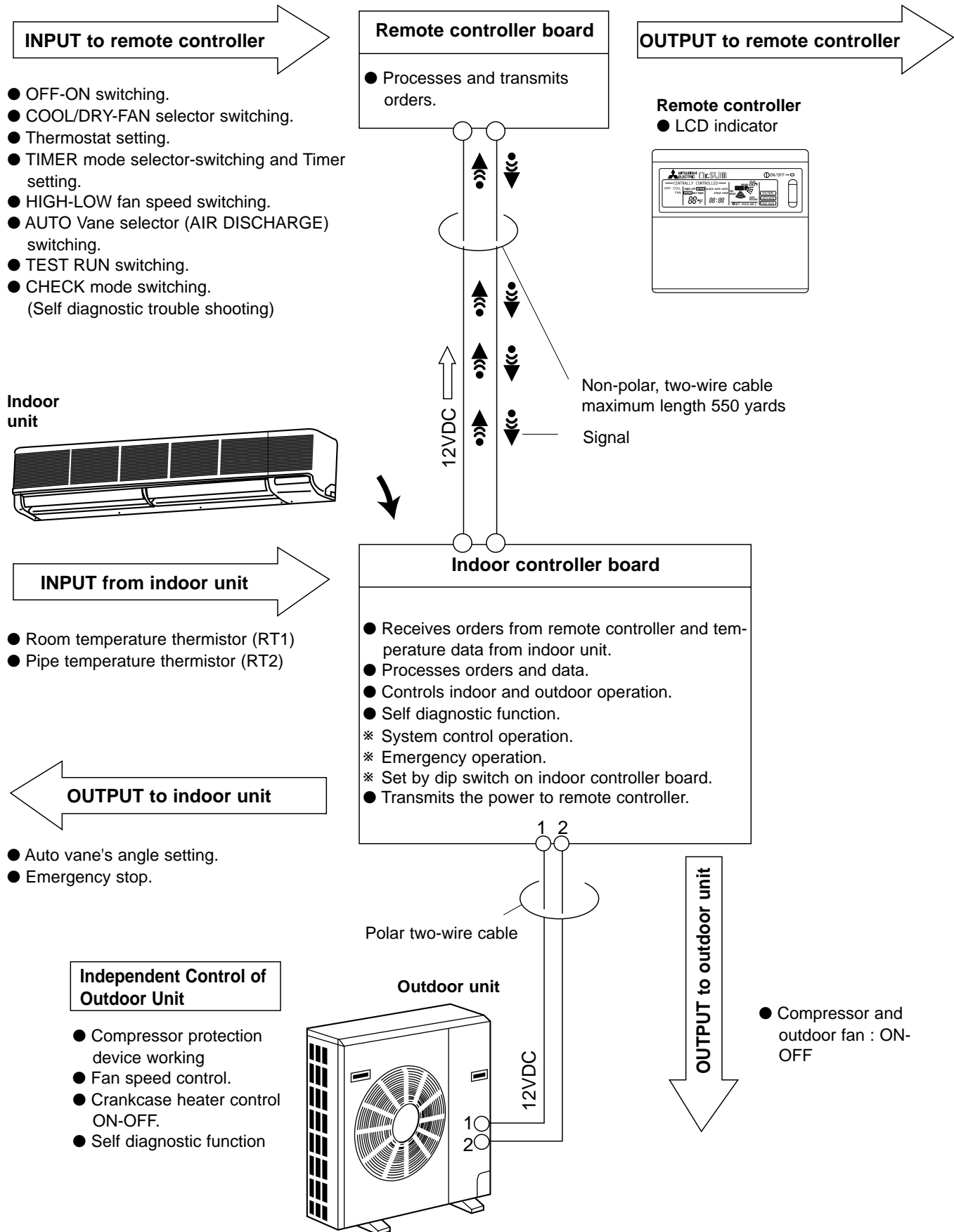
*12 When room temperature is 64°F or below, the compressor cannot operate.
When room temperature rises over 64°F the compressor starts after a 3-minute time delay.

*13 Compressor ON time is decided by room temperature. Refer to page OC274-32.

*14 In dry operation, compressor ON makes the fan speed LOW. Also, when the compressor OFF and the pipe temperature is 79°F or less, the fan stops, or when the compressor OFF and the pipe temperature is below 43°F the fan speed changes to LOW mode.

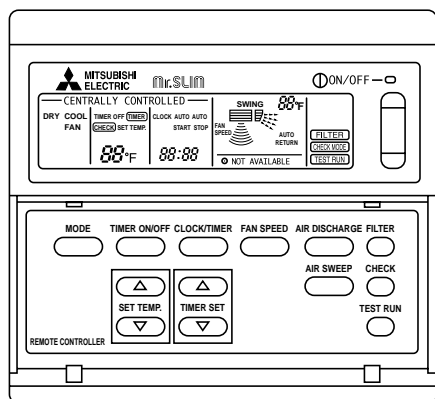
It is not possible to set the fan speed with the remote controller

1. OUTLINE OF MICROPROCESSOR CONTROL



2. INDOOR UNIT CONTROL

2-1 COOL operation

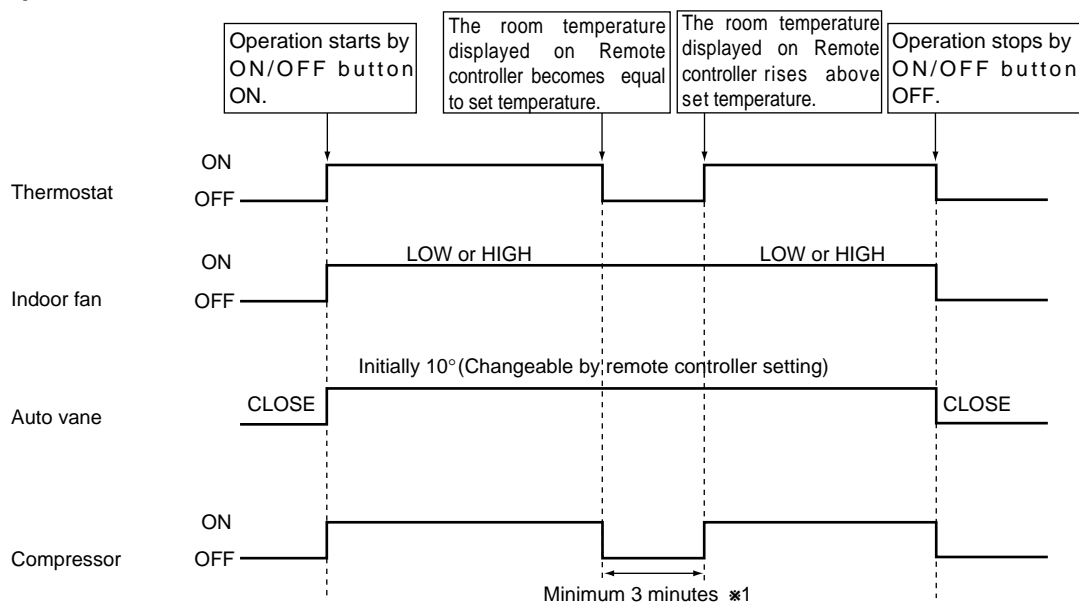


<How to operate>

- ① Press the ON/OFF button.
- ② Press MODE button to set operation mode to Cool.
- ③ To set desired temperature, press SET TEMP.button.

NOTE : Set temperature changes by 2°F in the range 65~87°F, each time SET TEMP. button is pressed.

<COOL operation time chart>



※1 Even if the room temperature displayed on remote controller rises above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

① 3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

② The compressor runs when room temperature is higher than set temperature.

The compressor stops when room temperature is equal to or lower than the set temperature.

The compressor maintains the previous state when the room temperature minus the set temperature is 0 degrees or more, or lower than 2 degrees.

③ The compressor stops in check mode or during protective functions.

④ Coil frost prevention

To prevent indoor coil frost, the compressor will stop when the indoor coil thermistor (RT2) reads 34°F or below after the compressor has been continuously operated for at least 16 minutes or more. When the indoor coil temperature rises to 50°F or above, the compressor will start in a 3-minute(*2) time delay.

*2 When the indoor coil temperature is 30°F or less, the compressor starts in 6 minutes.

NOTE : By turning OFF the dip switch SW1-3 on indoor controller board, the start temperature of coil frost prevention changes from 34°F to 36°F.

⑤ Coil frost protection

When indoor coil temperature becomes 5°F or below, coil frost protection will proceed as follows.

<Start condition>

After the compressor has been continuously operated for 3 minutes or more, and the indoor coil temperature has been 5°F or below for 3 minutes, the coil frost protection will start.

<Coil frost protection>

Compressor stops for 6 minutes, and then restarts.

If the start condition is satisfied again during the first 10 minutes of compressor operation, both the indoor and outdoor units stop, displaying a check code of "P6" on the remote controller.

<Termination conditions>

Coil frost protection is released when the start condition is not satisfied again during the allowance, or when the COOL mode stops or changes to another mode.

(2) Indoor fan control

Indoor fan speed depends on the remote controller setting.

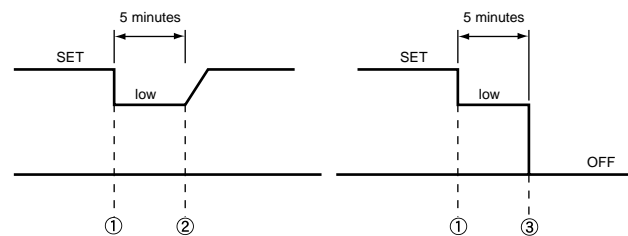
However, if an outdoor unit abnormality is detected, the indoor fan speed will be low, regardless of the remote controller setting.

When the outdoor unit abnormality detection is released and the fan speed returns to the set speed, the quiet cycle control will work.

(a) Normal control

(i) Fan speed depends on the remote controller setting regardless of the thermostat on/off.

(ii) Fan speed will remain on low if an abnormality in outdoor unit is detected. (5 minutes)



- ① Start-up of outdoor unit abnormality detection.
- ② Release of outdoor unit abnormality detection.
- ③ Unit stop due to outdoor unit abnormality with P8 indication.

NOTE 1 : Fan stops immediately if the unit stops or the check mode is started.

(3) Auto vane control

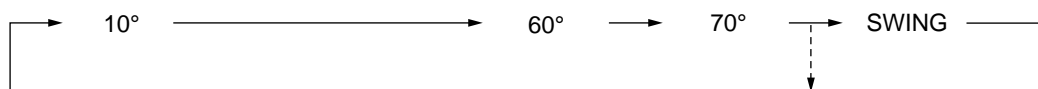
Auto vane position is set to 10 degrees airflow at the start-up of COOL operation. It can then be changed by the remote controller.

(a) Vane position set mode & swing mode.

(i) Every time AIR DISCHARGE button is pressed, setting will be change.

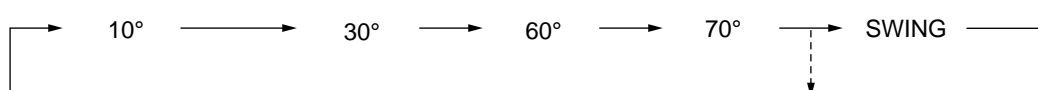
(ii) Airflow direction can be changed with AIR DISCHARGED button.

① Fan speed : LOW



PK12FK3 does not provide SWING function.

② Fan speed : HIGH



PK12FK3 does not provide SWING function.

<AUTO RETURN>

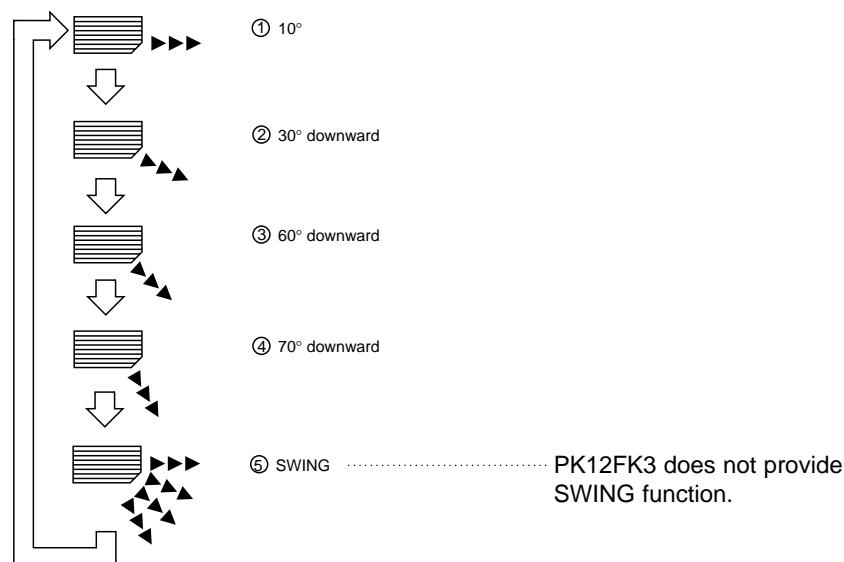
When discharge 60° or 70° continues for 1 hour with the fan speed at LOW, the discharge direction turns to the horizontal discharge automatically.

After that, 60° or 70° is available by setting with the remote controller, and it continues for 1 hour.

If the discharge direction changes from 60° or 70°, the direction returns to the horizontal discharge when 1 hour has passed since the discharge 60° started.

If the discharge direction changes from 60° (or 70°) to the horizontal discharge, the 1-hour timer to return the horizontal discharge is cancelled.

<Remote controller display>



PK12FK3 does not provide SWING function.

Changes by pressing the AIR DISCHARGE button.

(4) Detecting abnormalities in the outdoor unit

After the compressor has been continuously operated for 3 minutes, if the difference between the indoor coil temperature and room temperature is out of RANGE C for 1 minute, the indoor fan speed will turn to low. Five minutes later, if the difference is still out of

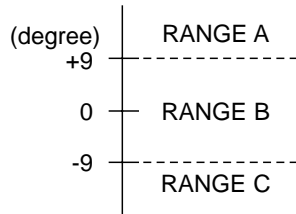
RANGE C, the outdoor unit is functioning abnormally. Thus, the compressor stops and check code "P8" appears on remote controller.

RANGE A : Pipe temperature is more than 9 degrees above room temperature.

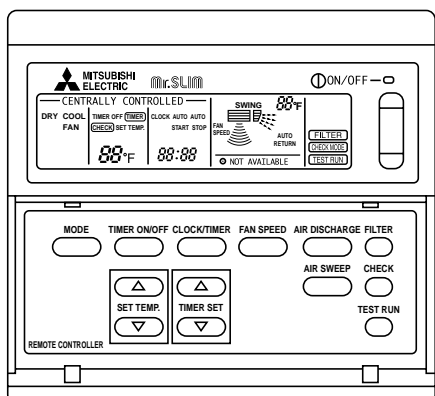
RANGE B : Pipe temperature is within 9 degrees either way of room temperature.

RANGE C : Pipe temperature is more than 9 degrees below room temperature.

Pipe temperature
minus room temperature



2-2 DRY operation

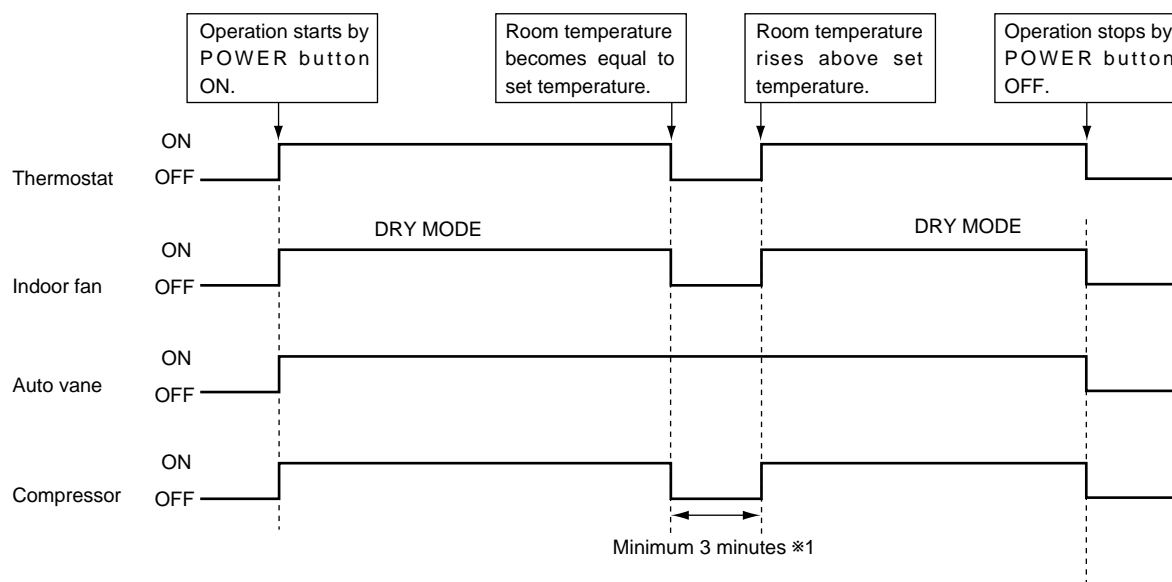


<How to operate>

- ① Press POWER ON/OFF button.
- ② Press the MODE button to display "DRY"
- ③ Press the SET TEMP. button to set the desired temperature.

NOTE: The set temperature changes 2°F when the SET TEMP. button is pressed one time.
Dry 65 to 87°F

<DRY operation time chart>



*1 Even if the room temperature rises above the set temperature during this period, the compressor will not start until this period has ended.

(1) Compressor control

① 3-minute time delay

To prevent overload, the compressor will not start within 3 minutes after stop.

② The compressor runs when room temperature is higher than set temperature.

The compressor stops when room temperature is equal to or lower than the set temperature.

The compressor maintains the previous state when the room temperature minus the set temperature is 0°F or more, or lower than 2°F.

③ The compressor stops in check mode or during protective functions.

④ The compressor will not start when the room temperature is 64°F or below.

The compressor starts intermittent operation when the power is turned ON with room temperature above 64°F. The compressor ON/OFF time depends on the thermostat ON/OFF and the following room temperatures. After 3-minute compressor operation,

- If the room temperature thermistor reads above 82°F with thermostat ON, the compressor will operate for 6 more minutes and then stop for 3 minutes.

- If the room temperature thermistor reads 79°F to 82°F with thermostat ON, the compressor will operate for 4 more minutes and then stop for 3 minutes.

- If the room temperature thermistor reads 75°F to 79°F with thermostat ON, the compressor will operate for 2 more minutes and then stop for 3 minutes.

- If the room temperature thermistor reads below 75°F with thermostat ON, the compressor will stop for 3 minutes.

- If the thermostat is OFF regardless of room temperature, the compressor will stop for 10 minutes.

⑤ Coil frost protection

Coil frost protection in DRY operation is the same as in COOL operation. (Refer to “2-1 COOL operation”.)

⑥ Coil frost prevention

Coil frost prevention does not operate in DRY operation.

(2) Indoor fan control

The indoor fan runs on LOW speed during compressor operation. The fan speed cannot be changed with the remote controller. Also, the fan runs on LOW speed when the pipe temperature is 43°F or more, or the compressor is OFF and the pipe temperature is below 43°F.

(a) During compressor OFF

- When the indoor coil temperature is 43°F or above, the indoor fan will stop.

- When the indoor coil temperature is below 43°F, the indoor fan will run on LOW speed.

(b) During compressor ON

- The indoor fan runs on LOW speed.

<Dry mode>

The fan notch is controlled by the indoor coil temperature every 30 seconds.

Fan control in DRY operation.

| | Pipe temp. | Fan |
|----------------|--------------|------|
| Compressor OFF | 43°F or more | STOP |
| | Below 43°F | LOW |
| Compressor ON | All | LOW |

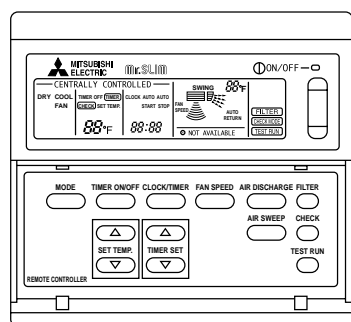
(3) Auto vane control

Same as in COOL operation

(4) Detecting abnormalities in the outdoor unit

An abnormality in the outdoor unit can not be detected in DRY operation.

2-3 Auto vane control



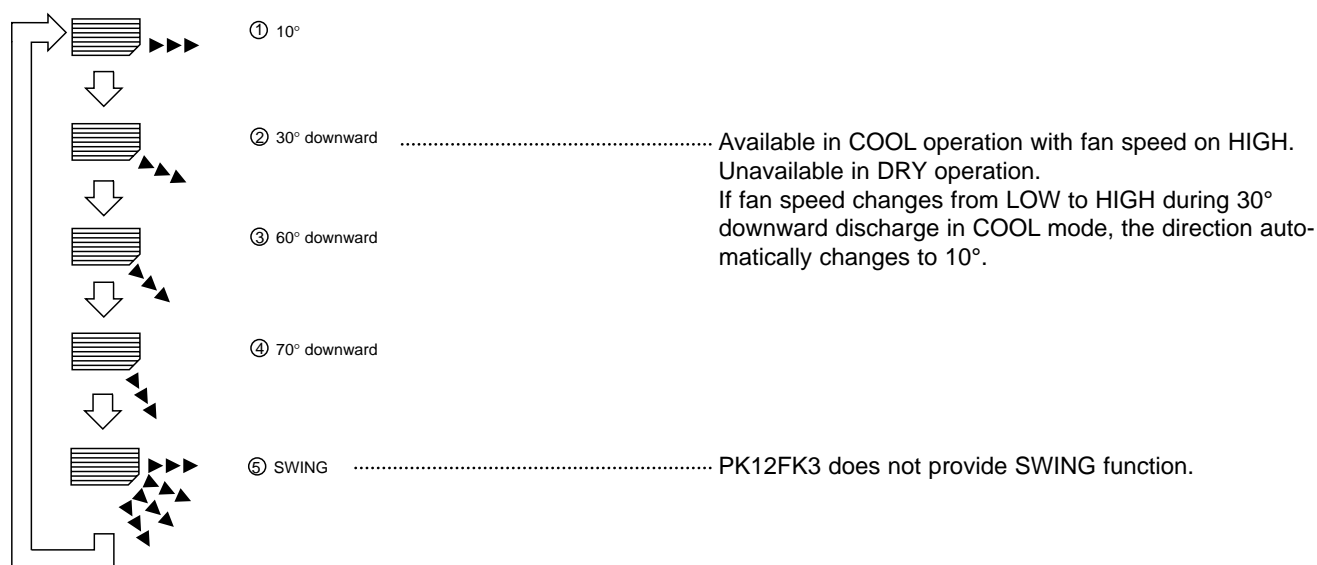
<How to operate>

To change the air flow direction, press AIR DISCHARGE button.

| ① | ② | ③ | ④ | ⑤ |
|-----|-----|-----|-----|-------------|
| 10° | 30° | 60° | 70° | SWING *1 |

*1. PK12FK3 does not provide SWING function

<Remote controller display>



Changes by pressing the AIR DISCHARGE button.

(1) COOL/DRY operation

At the start-up of COOL or DRY operation, the discharge direction is automatically set to 10°. After, it can be changed to another direction with AIR DISCHARGE button on the remote controller.

<Auto return>

When 60° or 70° discharge is set with fan speed on LOW, "AUTO RETURN" appears below the room temperature display. One hour later the direction changes to 10° automatically and "AUTO RETURN" disappears.

2-4 TIMER operation

WIRED REMOTE CONTROLLER



<Timer function>

AUTO STOPThe air conditioner stops after the set time lapses.

AUTO STARTThe air conditioner starts after the set time lapses.

AUTO OFFTimer is not active.

<How to operate>

1. Press POWER ON/OFF button.
2. Press "TIMER ON/OFF" button to select AUTO STOP or AUTO START.

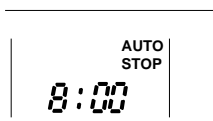
3. Press "CLOCK/TIMER" button to set desired time.

Time setting is in 1 hour units for up to 24 hours.

Each time TIMER SET button is pressed, set time increases by 1 hour. When TIMER SET button is pressed and held, the set time increases by 1 hour every 0.5 seconds.

4. To cancel the timer operation, press POWER ON/OFF button.

<Timer setting example>



This setting will stop the operation in 8 hours.

With the lapse of time, time display changes in 1 hour units, showing remaining time.

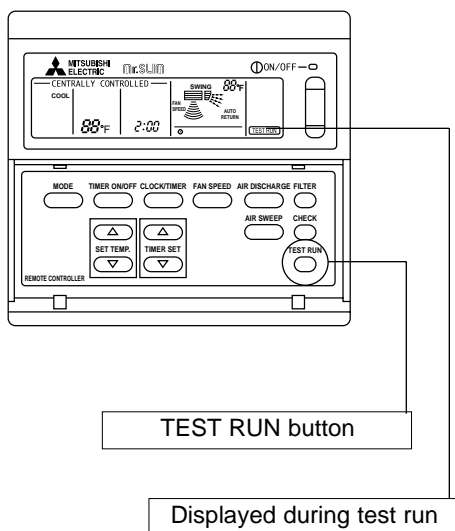
2-5 Test run

<Before test run>

- After installing, wiring, and piping the indoor and outdoor units, check for refrigerant leakage, looseness in power supply or control wiring, and mistaken polarity.
- Use a 500-volt measure to check the resistance between the power supply terminal block and ground to make sure that it is at least 1.0MΩ.

Attention:

Do not use the air conditioner if resistance is less than 1.0MΩ.



<How to operate>

1. Turn ON main breaker.
2. Press TEST RUN button twice. "TEST RUN" is displayed on remote controller.
3. Select "COOL" with MODE button to check that cool air is being discharge.
4. Select LOW/HIGH with FAN SPEED button to check that the fan speed changes properly.
5. Press AIR DISCHARGE button to check auto vane operation.
6. Check outdoor fan operation.
7. Check compressor operation referring to the indoor coil temperature code displayed on the remote controller.
8. After checking, press the ON/OFF button.

The test run works for 2 hours and stops automatically.

To cancel the test run, press ON / OFF button or TIMER ON / OFF button.

(1) Indoor coil temperature code

During the test run, the indoor coil temperature code from 1 to 15 is displayed on the remote controller instead of room temperature. The code should fall with the lapse of time in normal COOL operation.

| Code | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------------|-----------|---------------|--------|--------|--------|--------|------------------------|--------|
| Indoor coil temperature | ~34(36)°F | 36(37)°F~50°F | ~59°F | ~68°F | ~77°F | ~86°F | ~95°F | ~104°F |
| Code | 9 | 10 | 11 | 12 | 13 | 14 | 15 | |
| Indoor coil temperature | ~113°F | ~122°F | ~131°F | ~140°F | ~158°F | ~191°F | Thermistor abnormality | |

(2) Trouble during test run

- If the unit malfunctions during the test run, refer to section 10 in this manual entitled "TROUBLESHOOTING."
- When the optional program timer is connected to the conditioner, refer to its operating instructions.

2-6 Emergency operation

When the remote controller or microprocessor malfunctions but all other parts are normal, emergency operation is started by setting the dip switch SW3 on the indoor controller board.

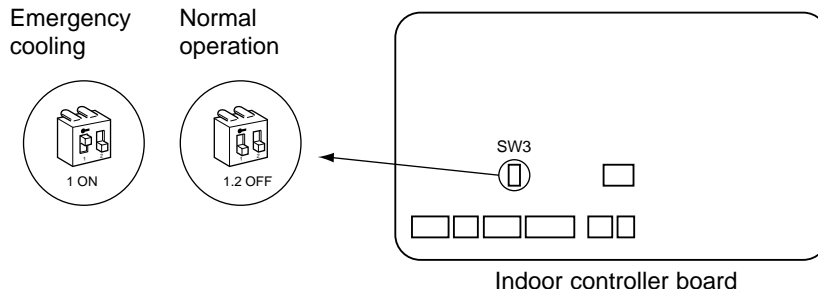
<Before emergency operation>

1. Make sure the compressor and the indoor fan are operating normally.
2. Locate the defect with the self-diagnostic function. When the self-diagnostic function indicates "protective function is working", release the protective function before starting the emergency operation.

CAUTION: When the self-diagnostic function indicates a check code of "P5" (drain pump malfunction), DO NOT start the emergency operation because the drain may overflow.

<How to operate>

1. For emergency cooling, set the dip switch SW3-1 to ON and SW3-2 to OFF.



2. Turn ON the outdoor unit breaker and then ON the indoor unit breaker.
Emergency operation will now start.
3. During emergency operation, the indoor fan operates on high speed, the auto vanes do not operate.
4. To stop emergency operation, turn OFF the indoor unit breaker.
5. Movements of the vanes do not work in emergency operation, therefore you have to slowly set them manually to the appropriate position.

NOTE: The remote controller POWER ON/OFF button can not start/stop emergency operations.

CAUTION: Do not use emergency cooling for more than 10 hours, as the indoor coil may freeze.

2-7 Dip switch functions

Each figure shows the initial factory setting.

1. On remote controller board

(1) SW17(Address selector)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| ON | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| OFF | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

SW17-1~6) For address setting

SW17-7) When two remote controllers are used, this switch sets the controller function.

OFF: The remote controller is set as a main controller.

ON: The remote controller is set as a sub controller.

SW17-8) Switch for system back-up.

OFF: Without back-up

ON: With back-up

(2) SW18(Function selector)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| ON | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| OFF | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

for PK12FK3

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| ON | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| OFF | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

for PK18/24/30/36FK3

SW18-1) Switch for timer

OFF: Single day ON: timer every day

SW18-2) Switch for filter sign

OFF: filter sign absent

ON: filter sign present

SW18-3) Switch for filter sign time setting.

OFF: 100Hr ON: 2500Hr

SW18-4~8) Not for use.

2. On indoor controller board

(1) SW1 (Mode selector)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| ON | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| OFF | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

SW1-1) Switch that changes between FAN mode and AUTO mode

OFF: Not available

ON: Not available

SW1-2) Not for use.

SW1-3) Switch to change the temperature to start coil frost prevention

OFF: 34°F

ON: 36°F

SW1-4) Not for use.

SW1-5) Not for use.

SW1-6) Not for use.

SW1-7) Switch for detecting abnormalities in the outdoor unit abnormality detection

OFF: When an abnormality occurs, it is detected.

ON: Even if an abnormality occurs, it can not be detected.

SW1-8) Switch for auto restart function

OFF: This function does not work

ON: This function works.

SW1-9, 10) Not for use.

(2) SW2 (Address selector)

| | 1 | 2 | 3 | 4 | 5 | 6 |
|-----|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| ON | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| OFF | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Used in setting the unit-address for group control.

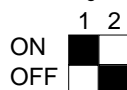
For further information, refer to page OC274-45.

(3) SW3 (Emergency operation switch)

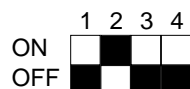
Normal operation



For emergency cooling



(4) SW5 (Model selector)



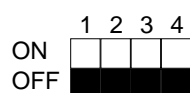
SW5-1) Not for use.

SW5-2) Leave this switch as it is.

SW5-3) Not for use.

SW5-4) Not for use.

(5) SW6 (Address selector)



This switch is not available for series PK.

(6) SW7 (Model selector)

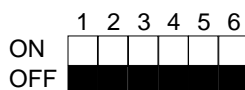
Switch to set the output of phase-controlled indoor fan motor.

Address setting is available at any time.

The initial factory setting by is based on each capacity.

| Model | PK12FK3 | PK18FK3 | PK24FK3 | PK30FK3 | PK36FK3 |
|-------|---------|---------|---------|---------|---------|
| SW7 | ON | ON | ON | ON | ON |
| | OFF | OFF | OFF | OFF | OFF |

(7) SW8 (Option)



SW8-1~2) Not for use.

SW8-3~4) Not for use.

SW8-5) Not for use.

SW8-6) Not for use.

(8) SW9 (Model selector)



for PK12FK3



for PK18/24/30/36FK3

SW9-1~5) Keep this switch.

3. INDOOR FAN CONTROL

Indoor fan relay output.

(a) During fan ON

The indoor fan relay turns ON. One second later, the phase control will start.

(b) During fan OFF

The phase control turns OFF. One second later, the indoor fan relay will turn OFF.

1. TROUBLE IN TEST RUN

| Symptom | Cause | Check points | | | | | | | | | | | | | | | | | | | | |
|---|--|---|--|-------------------|-----------------------|-------------|---|-------------------|------------|----------------------------|---|-------------------|-------------------|----------------------------------|---|------------|------------|--|---|------------|-------------------|----------------------------------|
| The display “CENTRALLY CONTROLLED” on remote controller does not disappear. | 1) Wrong address setting of remote controller/indoor controller board. 2) Timer adapter is connected to the remote controller. 3) Signal transmission error between indoor unit and remote controller. | 1) Check the address setting of remote controller and indoor controller. 2) Make sure the timer adapter is used correctly. 3) ① Turn another remote controller's DIP SW17-7 ON to make it sub controller. ② Connect the sub controller to the unit, and turn circuit breaker ON. ● If the display “centrally controlled” disappears, replace the original remote controller. ● If the display remains the same, replace the indoor controller board. | | | | | | | | | | | | | | | | | | | | |
| When remote controller POWER button is turned ON, the check code “E0”appears. | 1) Signal transmission error between indoor unit and remote controller | 1) ① Connect a sub remote controller. ② Turn circuit breaker ON. If the display “centrally controlled” remains, replace the indoor controller board. ③ If the display disappears, turn the remote controller POWER button ON and check as follows. <table><tr><td></td><td>Remote controller</td><td>Sub remote controller</td><td>Malfunction</td></tr><tr><td>1</td><td>Operating Display</td><td>E0 Display</td><td>Malfunction of indoor Unit</td></tr><tr><td>2</td><td>Operating Display</td><td>Operating Display</td><td>Malfunction of Remote controller</td></tr><tr><td>3</td><td>No Display</td><td>E0 Display</td><td>Malfunction of indoor Unit and Remote Controller</td></tr><tr><td>4</td><td>No Display</td><td>Operating Display</td><td>Malfunction of Remote controller</td></tr></table> | | Remote controller | Sub remote controller | Malfunction | 1 | Operating Display | E0 Display | Malfunction of indoor Unit | 2 | Operating Display | Operating Display | Malfunction of Remote controller | 3 | No Display | E0 Display | Malfunction of indoor Unit and Remote Controller | 4 | No Display | Operating Display | Malfunction of Remote controller |
| | Remote controller | Sub remote controller | Malfunction | | | | | | | | | | | | | | | | | | | |
| 1 | Operating Display | E0 Display | Malfunction of indoor Unit | | | | | | | | | | | | | | | | | | | |
| 2 | Operating Display | Operating Display | Malfunction of Remote controller | | | | | | | | | | | | | | | | | | | |
| 3 | No Display | E0 Display | Malfunction of indoor Unit and Remote Controller | | | | | | | | | | | | | | | | | | | |
| 4 | No Display | Operating Display | Malfunction of Remote controller | | | | | | | | | | | | | | | | | | | |
| When remote controller POWER button is turned ON, operating display appears, but disappears soon. | 1) Short circuit of indoor/outdoor connecting wire 2) Short circuit of transmission wire. 3) Wrong operation of remote controller due to noise wave emitted by other appliances. | 1), 2) Check the wire 3) Turn the circuit breaker OFF, and then turn ON. If the remote controller remains abnormal, despite the above measures, replace the indoor controller board. | | | | | | | | | | | | | | | | | | | | |
| Despite turning POWER button ON, the remote controller display does not appear. | 1) Damaged remote controller. 2) Short circuit of transmission wire. 3) Bad contact of indoor CN40. 4) CN40 is attached to a sub unit. 5) Damaged power board. 6) Bad contact of CN2D. 7) Blown fuse. 8) Circuit breaker OFF. | 1) Measure the voltage between terminals of remote controller. If no voltage, remove the terminals and measure the voltage between wires. If the voltage is between 6VDC and 12V, replace the remote controller. 2) ~ 8) Check each point. If it is not defective, replace the indoor controller board. | | | | | | | | | | | | | | | | | | | | |

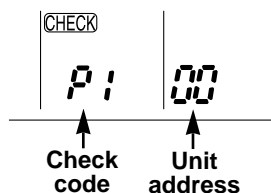
2. SELF DIAGNOSTIC FUNCTION WITH REMOTE CONTROLLER (WIRED REMOTE CONTROLLER)

2-1 When malfunction occurs during operation

When a malfunction occurs, the indoor and outdoor units stop and the malfunction is displayed on the LCD of the remote controller.

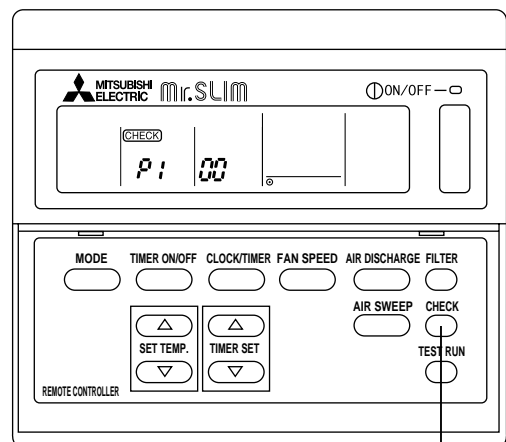
- (1) ON the set temperature display part, "CHECK" appears, and the unit address and the check code are displayed alternately at one-second intervals. (Check mode)

Example



- (2) When one remote controller controls several units in the group control, the LCD shows the unit address and check code of the first malfunctioning unit.
- (3) To cancel the check mode, press the \odot ON/OFF button. In remote ON/OFF control, press the remote \odot ON/OFF switch. In centralised control, turn OFF the \odot ON/OFF button of centralised controller.

CHECK mode



NOTE: The latest check code is memorised, even if the check mode is cancelled by the way mentioned above. It takes 60 seconds maximum to display the memorised check code.

2-2 How to use the self diagnostic function for service

A. For normal control with one unit and one remote controller

- (1) Pressing the CHECK button on the remote controller twice starts the self diagnostic function.
- (2) During the self diagnostic function, "CHECK MODE" appears at two positions on the remote controller display. Then, at least 10 seconds later, the unit address and the check code is alternately displayed at one-second intervals.
- (3) Check and repair the unit according to the check code. (Refer to the next page.)

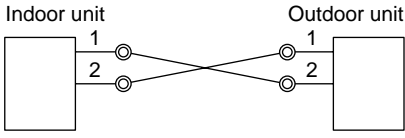
B. For group control using one remote controller

- (1) Pressing the CHECK button on the remote controller twice starts the self diagnostic function.
- (2) Press the \triangle SET TEMP. button or ∇ SET TEMP. button on the remote controller to advance or go back to the unit address. Each time \triangle SET TEMP. button is pressed, the unit address advances by one. Each time ∇ SET TEMP. button is pressed, the unit address goes back by one.
The check code and the unit address, appear alternately.
- (3) The check code "U8" means no malfunction has occurred since installation.
The check code "E0" means the following conditions:
 - The unit address displayed on the remote controller does not apply to any unit.
 - power is not supplied to the unit.
 - Signal transmitting/receiving circuit is abnormal.
- (4) Check and repair the unit according to the check code. (Refer to the next page.)

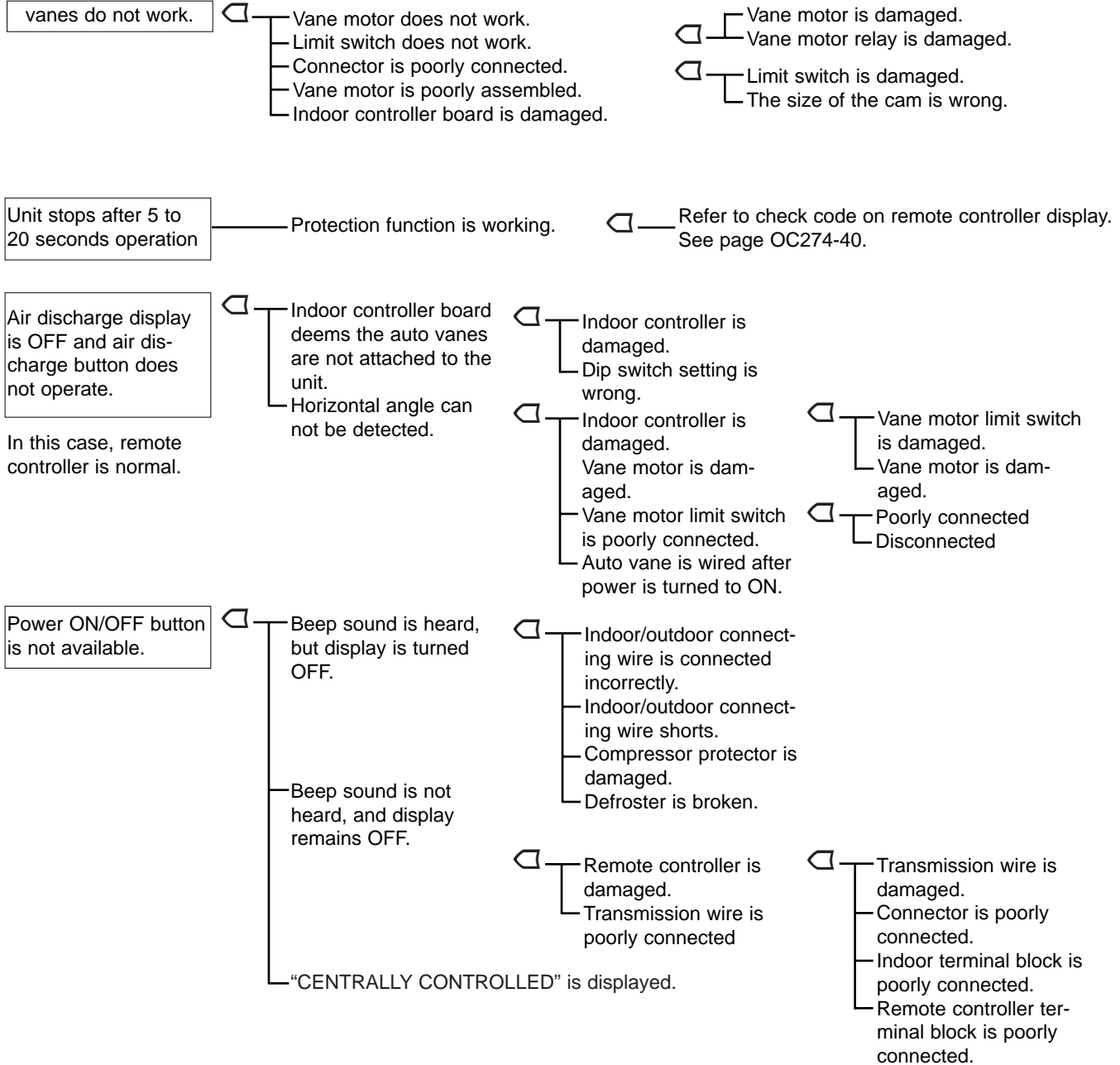
| Check code | Diagnosis of malfunction | Cause | Check points |
|------------|--|--|---|
| E0 | Signal transmitting/receiving error (Indoor controller does not respond to remote controller signal.) | During individual unit control 1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal. | 1) Check the transmission wire. 2) Check with another remote controller. If "E0" is still indicated, replace the indoor controller board. If other check code appears, replace the original remote controller. |
| P1 | Abnormality of room temperature thermistor (RT1) | 1) Bad contact of thermistor 2) Damaged thermistor | 1) Check the thermistor. 2) Measure the resistance of the thermistor. Normal resistance should be as follows. 32°F....15kΩ 86°F.....4.3kΩ 50°F.....9.6kΩ 104°F...3.0kΩ 68°F.....6.3kΩ If the resistance is normal, replace the indoor controller board. |
| P2 | Abnormality of indoor coil thermistor (RT2) | | |
| P3 | Signal transmission error (Remote controller does not respond to indoor controller signal.) | 1) Bad contact of transmission wire 2) Signal transmitting/receiving circuit is abnormal. 3) Wrong operation due to noise wave emitted by other appliances | 1) Check the transmission wire. 2) Check with another remote controller. If "P3" is still indicated, replace the indoor board. If other check code appears, replace the original remote controller. 3) Short-circuit between ① and ② of CN40 and attach CN40 to the following units. ● Second unit in twin control ● Second and third units in triple control ● Sub units in group control |
| P4 | Abnormality of drain sensor | 1) Bad contact of transmission wire 2) Damaged thermistor | 1) Check the connector. 2) Measure the resistance of the thermistor ① - ③. 32°F...6kΩ 59°F...3.2kΩ 86°F...1.8kΩ 41°F...4.8kΩ 68°F...2.6kΩ 95°F...1.5kΩ 50°F...3.9kΩ 77°F...2.2kΩ 104°F 1.3kΩ If the resistance is normal, replace the indoor controller board. |
| P5 | Malfunction of drain pump | 1) Malfunction of drain pump 2) Damaged drain sensor | 1) Check the drain pump. 2) Check the drain sensor. (Check the drop of water is on.) If the resistance is normal, replace the indoor controller board. |
| P6 | Freezing protection/overheating protection is working. | 1) Short cycle of air cycle 2) Dirty air filter 3) Damaged fan 4) Abnormal refrigerant | 1) Clear obstructions from the air cycle. 2) Clean the air filter 3) Check the fan. 4) Check the refrigerant temperature. |
| P7 | System error | 1) Wrong address-setting 2) Signal transmitting/receiving circuit of remote controller is abnormal. 3) Wrong SW6-setting | 1) Check the address-setting. 2) Check with another remote controller. If check code other than "P7" appears, replace the original remote controller. 3) Check SW6 setting. |
| P8 | Abnormality in outdoor unit | 1) Wrong wiring of indoor/outdoor connecting wire 2) Reversed phase 3) Protection device is working 4) Damaged outdoor coil thermistor | 1) Check the indoor/outdoor connecting wire. 2) Change the connection of electric wiring. 3) Check the protection device. 4) Measure the resistance of the outdoor coil thermistor. If the resistance is normal, replace the outdoor controller board. |

3. WRONG WIRING ON SITE

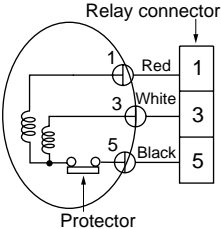
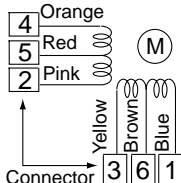
Symptom due to wrong wiring between indoor and outdoor units

| Wrong wiring | Thermostat | Phenomena |
|--|------------|---|
|  <p>Indoor unit</p> <p>Outdoor unit</p> | OFF | The outdoor unit stops. |
| | ON | Operation stops. 9 minutes later, the check code "P8" appears on the remote controller display. |
| Disconnect between 1 and 1 or 2 and 2. | OFF | Operation stops. |
| | ON | 9 minutes later, the check code "P8" appears on the remote controller display. |

4. OTHER TROUBLES AND CAUSES



5. HOW TO CHECK THE PARTS

| Parts name | Check points | | | | |
|---|---|---------------|---------------|-----------|---------------------------|
| Room temperature thermistor (RT1) Pipe temperature thermistor (RT2) | Disconnect the connector, then measure the resistance using a tester. (Surrounding temperature 50°F to 86°F) | | | | |
| | Normal | Abnormal | | | (Refer to the thermistor) |
| | 4.3kΩ to 9.6kΩ | Open or short | | | |
| Fan motor (MF) | Measure the resistance between the terminals using a tester. (Surrounding temperature 68°F) | | | | |
|  | Motor terminal or Relay connector | Normal | | | Abnormal |
| | | PK | | | |
| | | 12FK3 | 18,24FK3 | 30,36FK3 | Open or short |
| | Red-Black | 34.81Ω±10% | 33.1Ω±10% | 22.0Ω±10% | |
| | White-Black | 40.84Ω±10% | 30.8Ω±10% | 30.7Ω±10% | |
| Opening and closing temperature of protector. Open: 266±41°F (Fan motor OFF) Close: 176±68°F (Fan motor ON) | | | | | |
| Vane motor (MV) | Measure the resistance between the terminals using a tester. (Surrounding temperature 68°F to 86°F) | | | | |
|  | | Normal | Abnormal | | |
| | Brown-Yellow | 186 to 214Ω | Open or short | | |
| | Brown-Blue | | | | |
| | Red-Orange | | | | |
| | Red-Pink | | | | |

<Thermistor Characteristic graph>

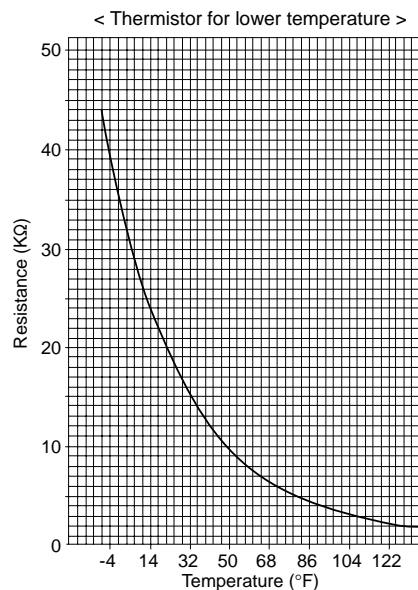
Thermistor for lower temperature

Room temperature thermistor(RT1)
Pipe temperature thermistor(RT2)

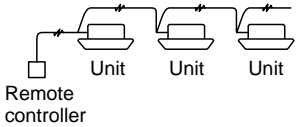
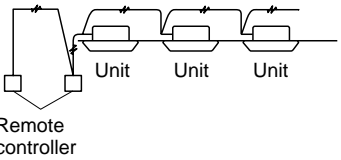
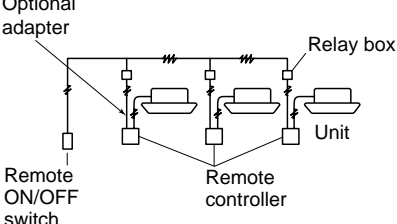
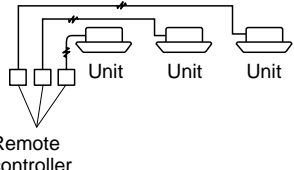
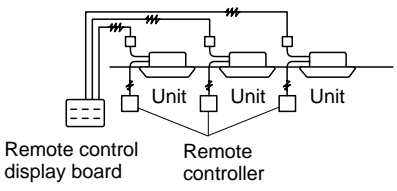
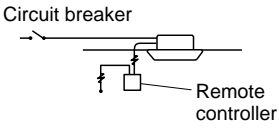
Thermistor R₀=15kΩ ± 3%
Fixed number of B=3480kΩ ± 2%

$$R_t = 15 \exp \left\{ 3480 \left(\frac{1}{273+t} - \frac{1}{273} \right) \right\}$$

| | |
|-------|-------|
| 32°F | 15kΩ |
| 50°F | 9.6kΩ |
| 68°F | 6.3kΩ |
| 77°F | 5.4kΩ |
| 86°F | 4.3kΩ |
| 104°F | 3.0kΩ |



1. VARIETY OF SYSTEM CONTROL FUNCTIONS

| | | |
|---|--|---|
| <p>① Group control with a single remote controller (See page OC274-45)</p> |  <p>Remote controller</p> | <p>Many units, installed at different locations, can be started and controlled with a single remote controller. The remote controller can be mounted in a different location using a non-polar two-wire cable, which can be extended up to 500m. A maximum of 50 units can be controlled with a single remote controller. All units operate in the same mode.</p> |
| <p>② Control using two remote controllers (See page OC274-46)</p> |  <p>Remote controller</p> | <p>Two remote controllers can be used to control either one unit or a group of units. Units can then be controlled from a distance or at close range. Units operate according to the latest command from either remote controller.</p> |
| <p>③ Both remote ON/OFF and individual controls (See page OC274-46) ※ Timer adapter (PAC-SA89TA-E) is needed.</p> |  <p>Optional adapter Remote ON/OFF switch Relay box Remote controller Unit</p> | <p>All units can be turned on or off simultaneously using a remote ON-OFF switch. Also, each unit can be controlled individually by each remote controller. During remote ON-OFF control, a message of "CENTRALLY CONTROLLED" is displayed on the LCD of the remote controller. This is available for both one unit control and several units control.</p> |
| <p>④ Individual control by grouping remote controllers (See page OC274-47)</p> |  <p>Remote controller</p> | <p>By grouping the remote controllers in one place, several units installed at different locations can be controlled individually, and operation conditions of all units are visible without a special control board. The control method is the same as that of the single unit with a single remote controller.</p> |
| <p>⑤ Multiple remote control display (See page OC274-48) ※ Multiple display adapter (PAC-SA88HA-E) is needed.</p> |  <p>Remote control display board Remote controller Unit</p> | <p>Several units can be controlled with a remote control display board. Operation conditions of all the units are visible with the remote control display board. Individual control by each remote controller is also possible.</p> |
| <p>⑥ Auto restart function (See page OC274-48)</p> |  <p>Circuit breaker Remote controller</p> | <p>A unit can be started or stopped with the circuit breaker on or off. Remote controller is also available. With this function, when the power is restored after power failure, the unit will restart automatically. (However, when the remote controller POWER ON/OFF button is OFF, the unit will not start.)</p> |

2. GROUP CONTROL WITH A SINGLE REMOTE CONTROLLER

A maximum of 50 units can be started in order according to the dip switch settings

2-1 How to wire

- (1) Connect the remote controller to the double terminal block on the indoor controller board of the master unit (No.0 unit). (See Figure 1.)
- (2) Connect the double terminal block of the master unit to the double terminal block of No.1 unit.
- (3) Connect the double terminal block of No.1 unit to the double terminal block of No.2 unit.
- (4) Continue the process until all the units are connected with two-wire cables. (See Figure 2.)
- (5) Remove the connector CN40 from the indoor controller board of each unit except the master unit. (See Figure 3.)
- (6) Set the unit-address of each unit with SW2 on the indoor controller board following the instructions below.

2-2 How to set unit-address

The unit-address also serves as a successive-start timer which starts each unit at intervals of 1 second. If two or more units have the same unit-address in a group control, operation stops due to system error. Be sure to set SW2 correctly following the instructions below.

- (1) Each lever of SW2 shows the number as follows.

| | |
|-----------|------------|
| SW2-1 : 1 | SW2-4 : 8 |
| SW2-2 : 2 | SW2-5 : 16 |
| SW2-3 : 4 | SW2-6 : 32 |
- (2) Total number of levers turned to ON shows the address of the unit.
For example, to set No.3 unit, turn ON SW2-1 and SW2-2.
- (3) In this way, set from the master unit to the last unit.
Do not forget to set the master (No. 0) unit.

Figure 1

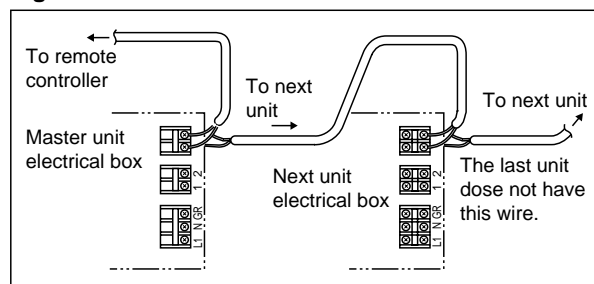


Figure 2

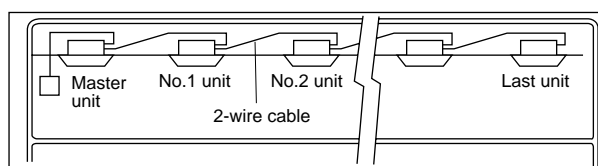
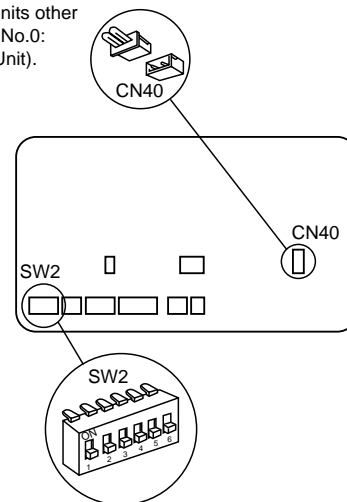


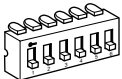
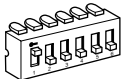
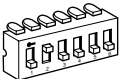
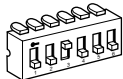
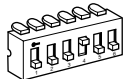
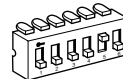
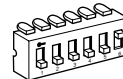
Figure 3

Indoor controller board ▼

Should be removed from all units other than unit No.0: (Master Unit).



Setting examples

| | Master (No. 0) unit | No. 1 unit | No. 2 unit | No. 4 unit | No. 8 unit | No. 16 unit | No. 32 unit |
|--|--|---|---|--|---|---|---|
| SW2 | ALL OFF  | 1 ON  | 2 ON  | 3 ON  | 4 ON  | 5 ON  | 6 ON  |
| Unit address & start delay in seconds. | 0 | 1 | 2 | 4 | 8 | 16 | 32 |

2-3 Unit control

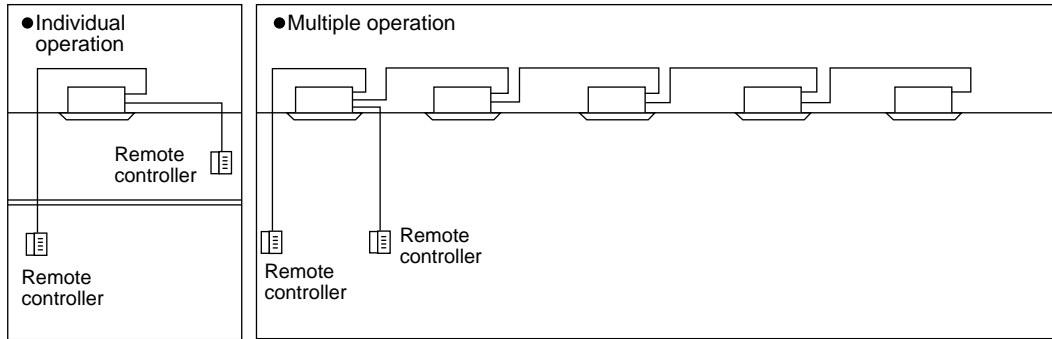
The remote controller can control all units ON/OFF, temperature, air flow, and swing louver. However, the thermostat in each unit turns ON or OFF individually to adjust to the room temperature.

3. CONTROL USING TWO REMOTE CONTROLLERS

Two remote controllers can be used to control either one unit or a group of units. Units operate according to the latest command from either of the two remote controllers.

Before operation, be sure to set one remote controller as the “main controller” and the other as the “sub controller”, using dip switch SW17-7 of the remote controller.

Figure 4



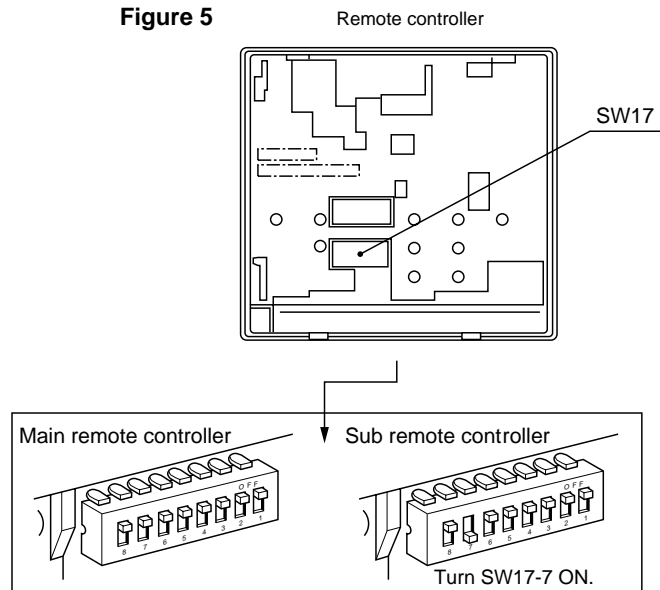
3-1 How to set SW17-7 (See Figure 5.)

- (1) For the main remote controller, turn SW17-7 OFF.
- (2) For the sub remote controller, turn SW17-7 ON.

3-2 Remote controller LCD indication

- (1) The same indications always appear on both the main and sub remote controllers, except during the timer operations.
- (2) Timer operations can be set with either of the two remote controllers. However, LCD indication appears only on the remote controller used for timer-settings.
- (3) If both remote controllers are set for timer operation with different time-settings, the timer operation with the shorter remaining-time is effective.
- (4) Self-diagnostic function is available with either of the two remote controllers. If one of the remote controllers is used for the self-diagnostic function, the other remote controller displays the check mode. If the self-diagnostic function is reset by either of the two remote controllers, both remote controllers are reset.

Figure 5



4. REMOTE ON-OFF AND INDIVIDUAL REMOTE CONTROLS

This method is available to control one unit or any number of units.

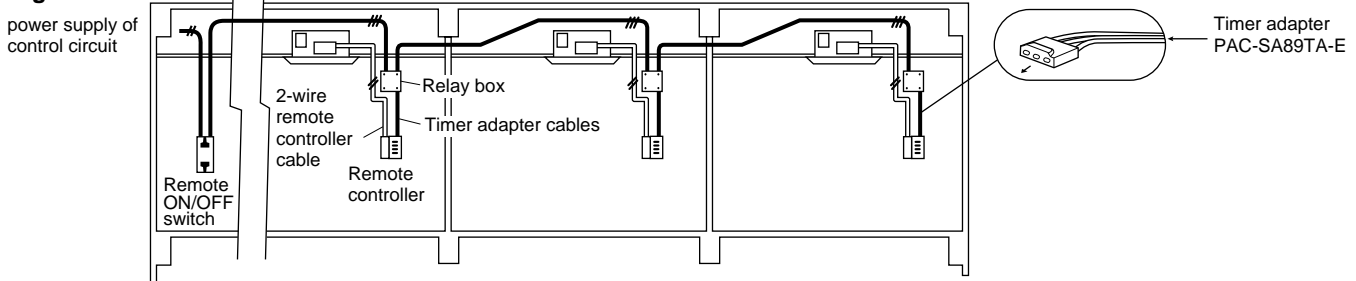
The following operations are available by connecting a relay, a timer adapter (PAC-SA89TA-E), and a remote ON/OFF switch to the system. Timer adapter is an optional part. Other parts are available on the market.

- (A) To start all units in order by remote ON-OFF switch
- (B) To stop all units simultaneously by remote ON/OFF switch
- (C) To switch between the remote ON-OFF control and the individual remote control

4-1 System

Figure 6 shows the case of three units. The same is the case with any number of units.

Figure 6



NOTE1 : Install the relay box where you can be serviced it easily.

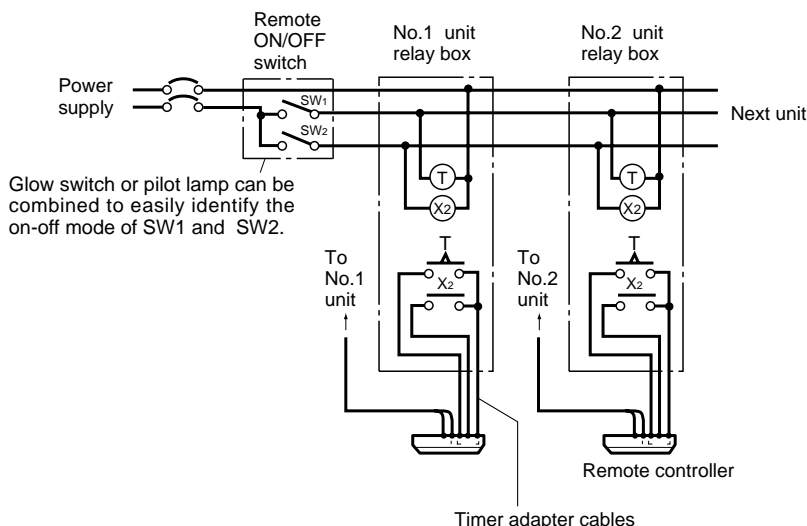
NOTE2 : For control circuit wiring, use a wire of No. 14 AWG or a control cable according to the power supply of control circuit.

NOTE3 : When the power supply of the control circuit is 115V AC,

- Do not connect the control circuit wire to the remote controller cable directly.
- Do not place the control circuit wire and the remote controller cable into the same conduit tube.

4-2 Basic wiring

Caution : Before starting all units simultaneously by the remote ON-OFF switch, be sure to connect a sequence-start timer into the remote ON-OFF circuit. Otherwise, a rush of starting current may damage the power supply.



4-3 Switch function of remote ON-OFF switch

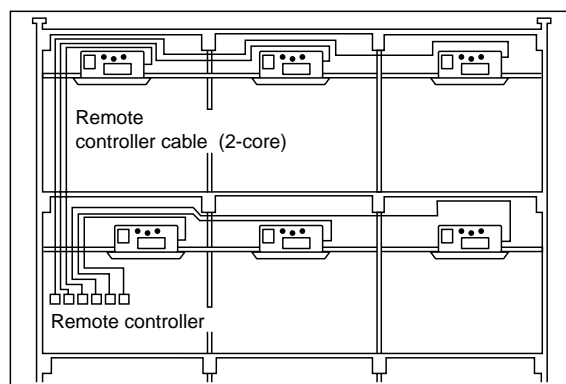
| | | SW2 (Switches between remote ON-OFF and individual control) | |
|---|---------------|--|---|
| | | ON (Remote ON-OFF control) | OFF (Individual control) |
| SW1 (Switches between remote ON and OFF.) | ON (Start) | All units start together. ※1 Individual control is not available. | Each unit can be controlled by each remote controller. Remote ON-OFF switch is not available. |
| | OFF (Stop) | All units stop together. ※2 Individual control is not available. | |

※1After all units start together, if SW2 is turned OFF, each unit can be individually stopped by each remote controller.

※2After all units stop together, if SW2 is turned OFF, each unit can be individually started by each remote controller.

5. INDIVIDUAL CONTROL BY GROUPING THE REMOTE CONTROLLERS

- Grouping the remote controllers allows individual control and centralised monitoring of units installed in different places without a special control board.
- Remote control cables are extendible up to 550 yards When the cable length exceeds 33ft, use the double-insulated two-core cable such as Belden 9407. Also, the cable thickness must be No. 22 AWG or above.
- When gathering the power ON/OFF switches of air conditioners near the remote controllers, you should also install the power ON/OFF switch near each unit to prevent electric trouble during servicing.

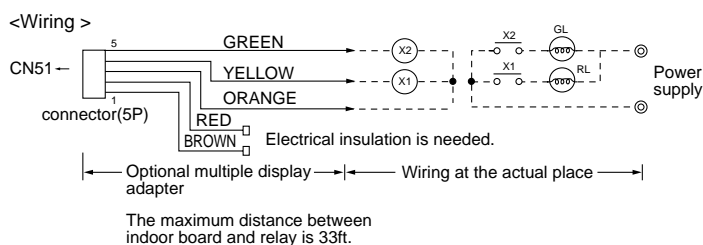


6. MULTIPLE REMOTE CONTROL DISPLAY

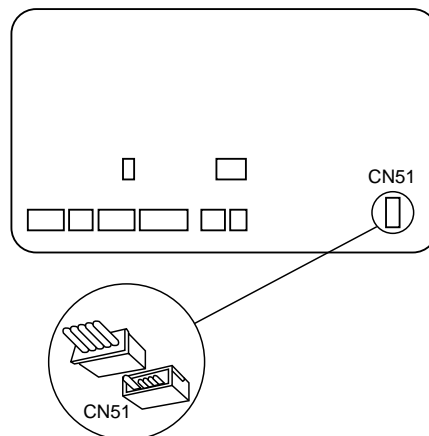
You can control several units with a multiple remote control display, by wiring an optional multiple display adapter (PAC-SA88HA-E) with relays and lamps on the market.

How to wire

- (1) Connect the multiple display adapter to the connector CN51 on the indoor controller board.
- (2) Wire three of the five wires from the multiple display adapter as shown in the figure below.



Indoor controller board



[Notes on Signs]

X1:Relay (for operation lamp)

X2:Relay (for check lamp)

RL:Operation Lamp

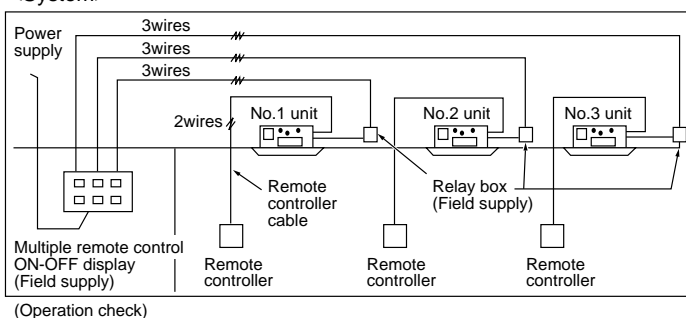
GL:Check Lamp

[Field supplied parts]

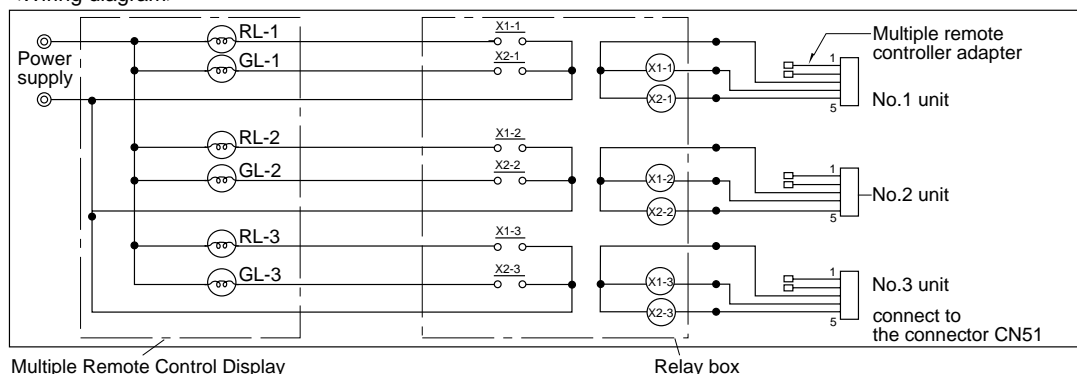
Relays:12V DC with rated coil power consumption below 0.9W.

Lamps:Matching to power supply voltage.

<System>



<Wiring diagram>



7. AUTO RESTART FUNCTION

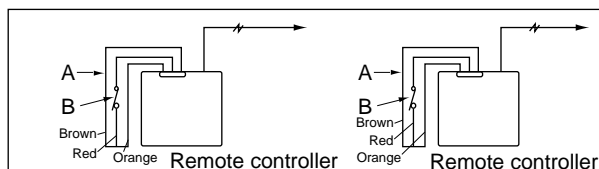
By setting the dip switch SW1-8 to ON, the air conditioner can be started/stopped by power supply ON/OFF.

If the air conditioner is OFF before the power failure, it will not start operation by power restore.

•This function is mainly to emergency performance when the power supply stops temporarily. Therefore, since the protection function (for example, crank case heater and prevention from restarting in 3 minutes, etc.) of the device is not operated, this function should not be used mostly.

8. TIMER OPERATION OR THE OPERATION BY AN EXTERNAL SIGNAL

<Wiring>

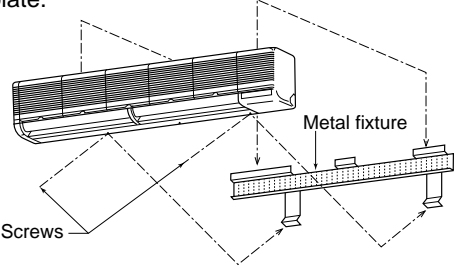
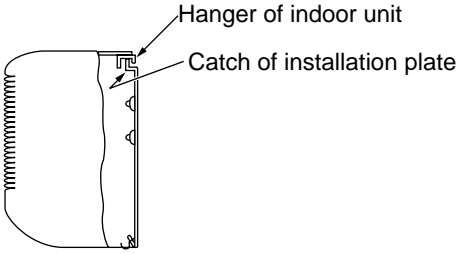
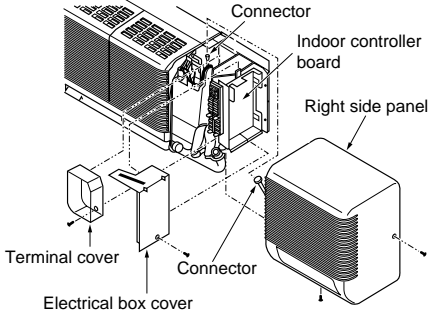
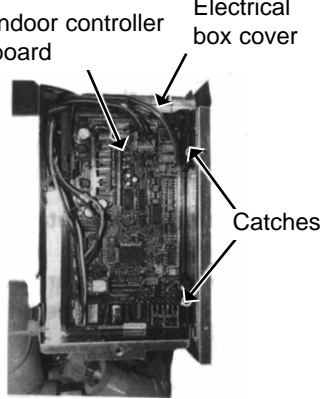
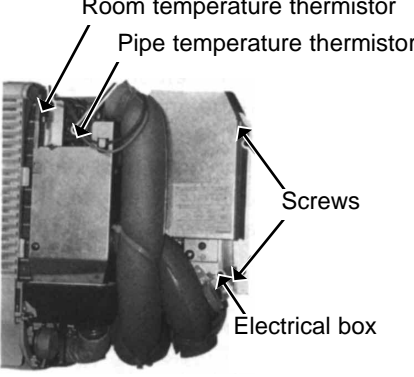


A : an optional timer adapter

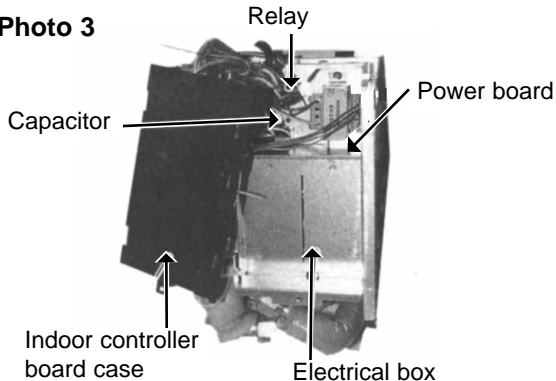
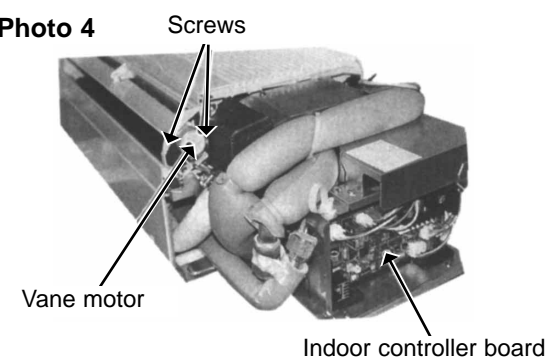
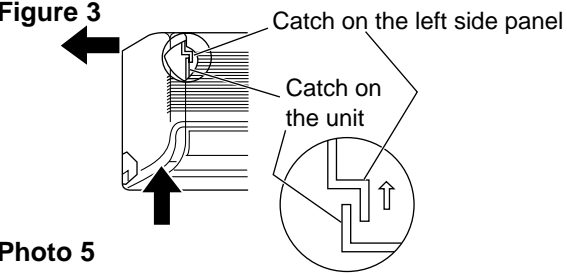
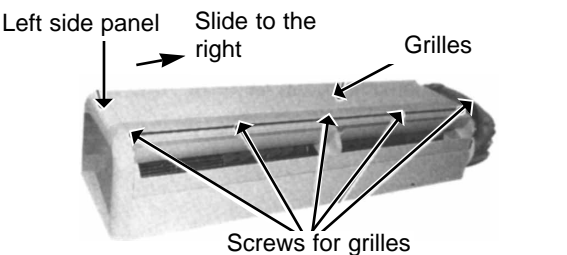
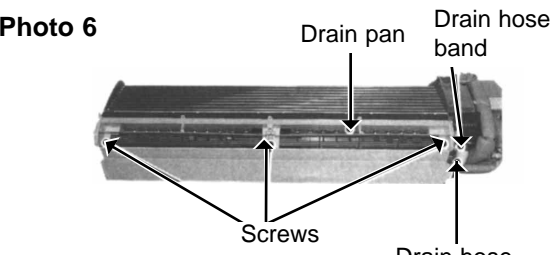
B : a single-throw switch

For remote control, connect the optional timer adapter (PAC-SA89TA-E)

Indoor unit PK24FK3

| OPERATING PROCEDURE | PHOTOS&ILLUSTRATION |
|---|---|
| <p>1. Removing the lower side of the indoor unit from the installation plate</p> <p>(1) Remove the 2 screws. Hang the indoor unit hangers to the catches on the installation plate.</p>  | <p>Figure 1</p>  |
| <p>2. Removing the right side panel</p> <p>(1) Remove the 2 screws of the right side panel: one on the bottom and the other on the upper right-hand side. (2) Disconnect the connector from the adapter case. (3) Sliding the right side panel to the right, pull it out toward you.</p> | <p>Figure 2</p>  |
| <p>3. Removing the indoor controller board</p> <p>(1) Remove the right side panel. (2) Remove the screw of the electrical box cover, and remove the cover. (3) Disconnect the connectors on the indoor controller board. (4) To unhook the catches on the right-hand side of the indoor controller board, pull the left-hand side toward you and lift up the cover to the right. Then the indoor controller board can be removed.</p> | <p>Photo 1</p>  |
| <p>4. Removing the electrical box</p> <p>(1) Remove the right side panel. (2) Remove the screw of the electrical box cover, and remove the cover. (3) Remove the room temperature thermistor and the pipe temperature thermistor. (4) Disconnect the vane motor connector on the indoor controller board. (5) Remove the 2 screws of the electrical box. (6) Disconnect the connector of the heater lead wire connector. (7) Disconnect the connector of the fan motor lead wire. (8) Remove the electrical box.</p> | <p>Photo 2</p>  |



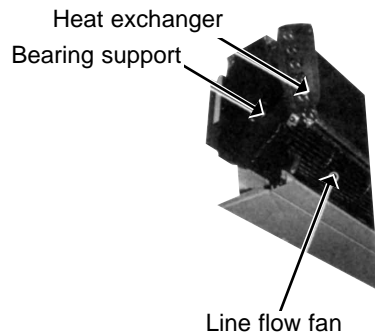
| OPERATING PROCEDURE | PHOTOS&ILLUSTRATION |
|--|--|
| <p>(9) Remove the screws of the indoor controller board case, and pull out the indoor controller board case. Then the transformer and the capacitor and relay can be serviced.</p> | <p>Photo 3</p>  |
| <p>5. Removing the vane motor</p> <ol style="list-style-type: none">(1) Remove the right side panel.(2) Remove the screw of the electrical box cover, and remove the cover.(3) Remove the 2 screws of the vane motor, and remove the motor from the shaft.(4) Disconnect the vane motor connector on the indoor controller board. | <p>Photo 4</p>  |
| <p>6 Removing the intake grilles</p> <ol style="list-style-type: none">(1) Remove the right side panel.(2) To remove the left side panel, remove the screw on the bottom and the screw on the upper left-hand side. (See Figure 3.)<ol style="list-style-type: none">1. Press up this side of the left side panel to unhook the catch on the panel from the catch on the unit.2. Slide the left side panel to the left to remove the panel. <p>Note: Fix the unit to the metal fixture securely</p> <ol style="list-style-type: none">(3) Remove the air filters.(4) Hold and press the center cover to remove.(5) Remove the screws of the grilles.(6) Pull the lower side of the grille toward you and slide the upper to the right to remove the grilles. | <p>Figure 3</p>  <p>Photo 5</p>  |
| <p>7. Removing the drain pan</p> <ol style="list-style-type: none">(1) Remove the left and right side panels.(2) Remove the grilles.(3) Remove the electrical box cover.(4) Loosen the drain hose band to remove.(5) Remove the 3 screws of the drain pan, and slide the drain pan toward you to remove. | <p>Photo 6</p>  |

OPERATING PROCEDURE

8. Removing the line flow fan and the fan motor

- (1) Remove the left and right side panels.
- (2) Remove the grilles.
- (3) Remove the electrical box.
- (4) Remove the drain pan.
- (5) Loosen the screw that fixes the line flow fan to the fan motor. (See Photo 7.)
- (6) Remove the 4 screws of the motor fixture, and remove the fan motor and the motor fixture at a time (See Photo 8.)
- (7) Remove the screws of the left and right motor supports, and remove the motor supports and the fan motor. (See Photo 9.)
- (8) Remove the 2 screws on the left and right sides of the heat exchanger, and pull the bearing support toward you. (See Photo 11.)
- (9) Remove the screw of the center support, and remove the support. (See Photo 10.)
- (10) Pull the left-hand side of the heat exchanger toward you, and remove the line flow fan.

Photo 11



PHOTOS

Photo 7

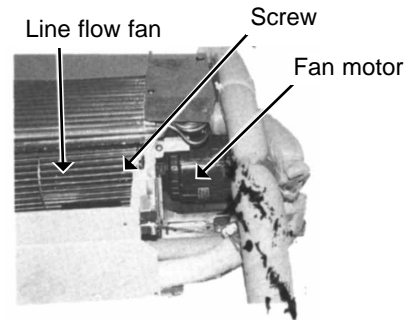


Photo 8

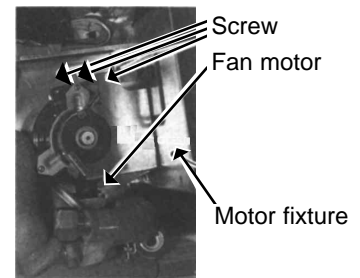


Photo 9

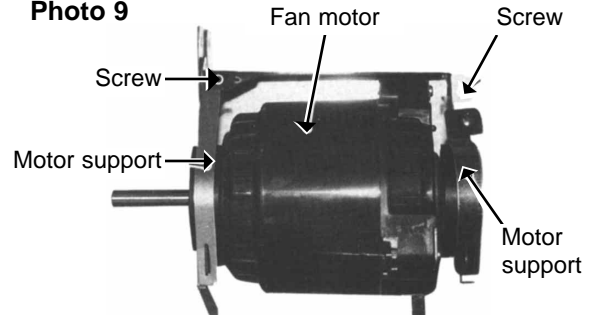
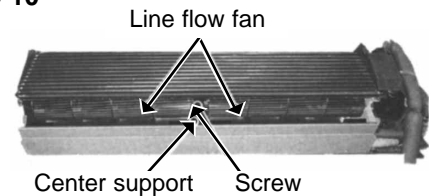
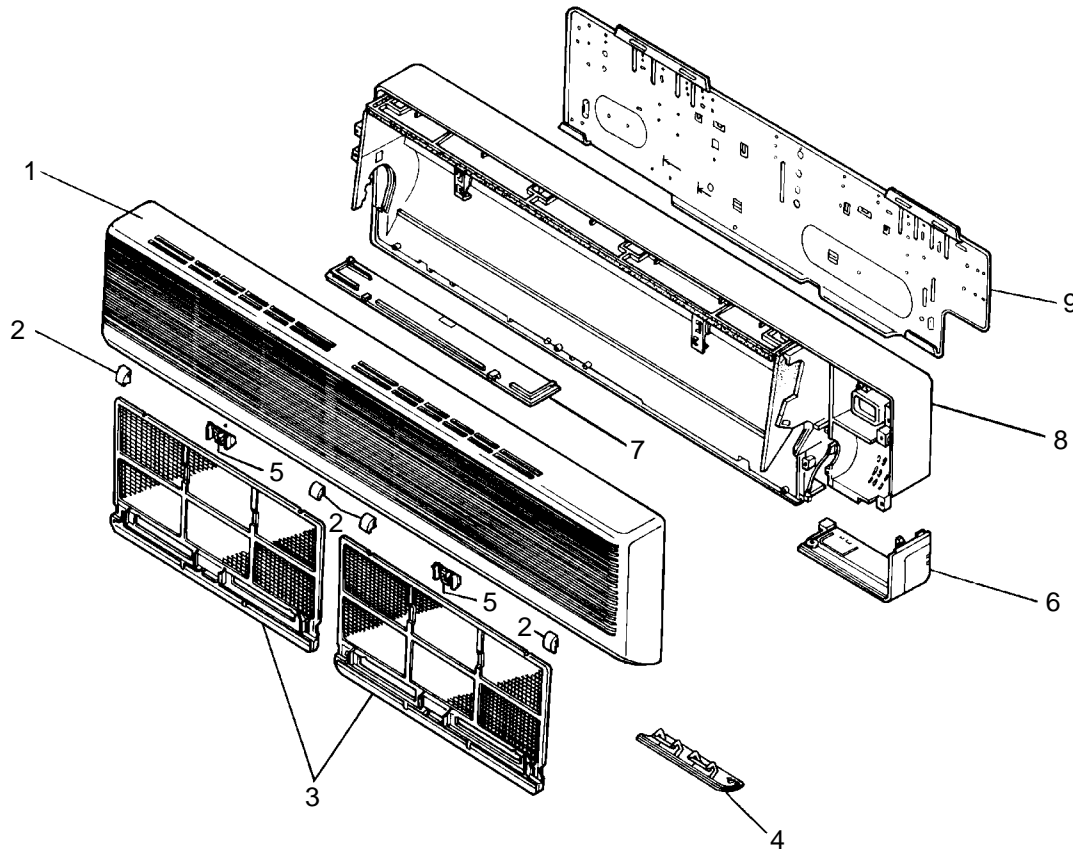


Photo 10



STRUCTURAL PARTS
PK12FK3


Part number that is circled is not shown in the figure.

| No. | Parts No. | Parts Name | Specifications | Q'ty / set | Remarks (Drawing No.) | Wiring Diagram Symbol |
|-----|-------------|---------------|----------------|------------|--------------------------|-----------------------------|
| | | | | PK12FK3 | | |
| 1 | R01 47J 651 | FRONT PANEL | | 1 | | |
| 2 | R01 KV5 096 | SCREW CAP | | 4 | | |
| 3 | R01 47J 500 | AIR FILTER | | 2 | | |
| 4 | T7W 580 058 | SERVICE PANEL | | 1 | | |
| 5 | R01 A20 054 | FILTER CATCH | | 2 | | |
| 6 | R01 KV5 658 | CORNER COVER | | 1 | | |
| 7 | R01 KV5 623 | UNDER COVER | | 1 | | |
| 8 | R01 KV5 635 | BOX ASSEMBLY | | 1 | | |
| 9 | R01 KV5 808 | BACK PLATE | | 1 | | |
| ⑩ | R01 12G 523 | DRAIN SOCKET | | 1 | | |

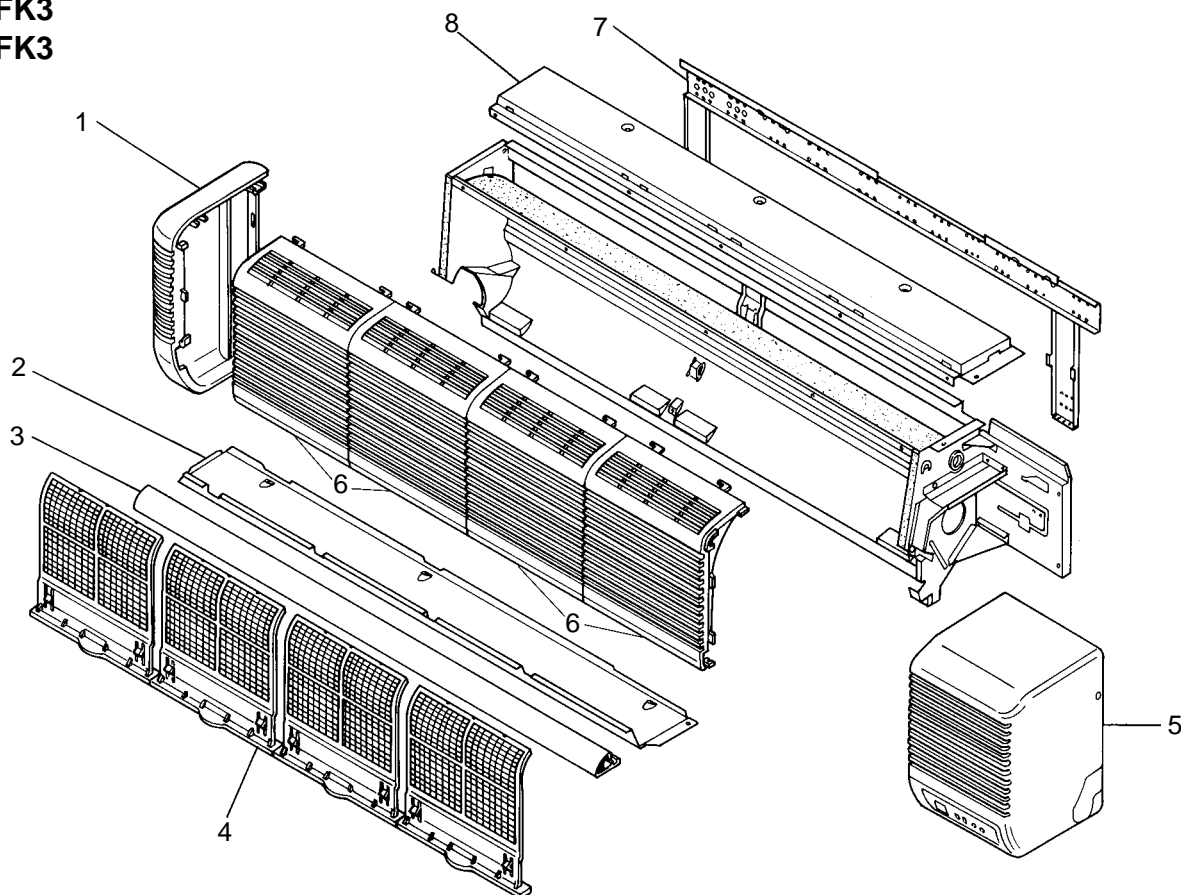
STRUCTURAL PARTS

PK18FK3

PK24FK3

PK30FK3

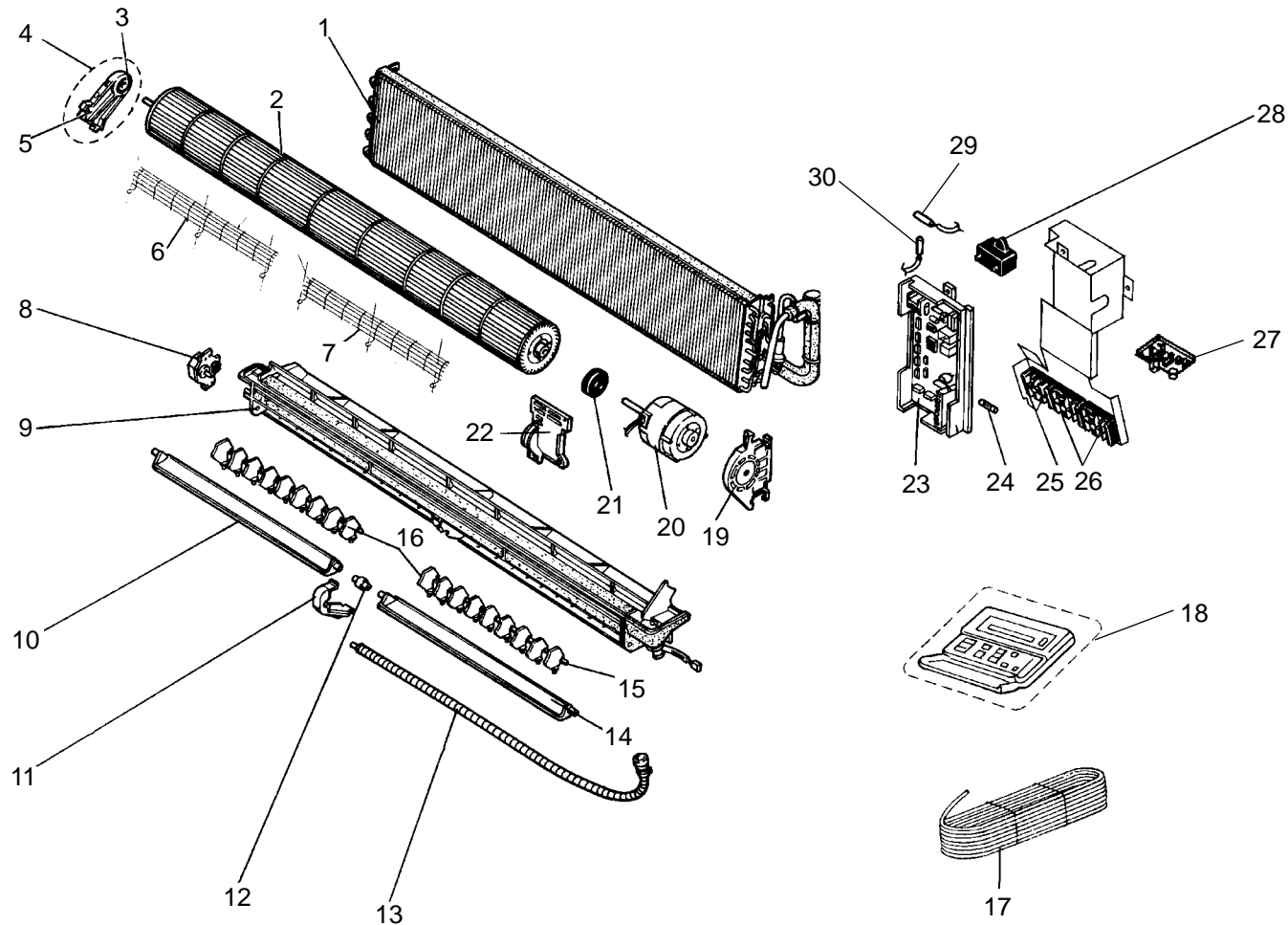
PK36FK3



Part numbers that are circled are not shown in the figure.

| No. | Parts No. | Parts Name | Specifications | Q'ty / set | | | | Remarks (Drawing No.) | Wiring Diagram Symbol |
|-----|-------------|------------------|----------------|------------|-------|-------|-------|--------------------------|-----------------------------|
| | | | | PK | | | | | |
| | | | | 18FK3 | 24FK3 | 30FK3 | 36FK3 | | |
| 1 | R01 12G 662 | LEFT SIDE PANEL | | 1 | 1 | 1 | 1 | | |
| 2 | R01 E01 812 | UNDER PLATE | | 1 | 1 | | | | |
| | R01 E00 812 | UNDER PLATE | | | | 1 | 1 | | |
| 3 | R01 E00 811 | NOSE | | 1 | 1 | | | | |
| | R01 E01 811 | NOSE | | | | 1 | 1 | | |
| 4 | R01 A17 500 | FILTER | | 4 | 4 | 5 | 5 | | |
| 5 | R01 12G 661 | RIGHT SIDE PANEL | | 1 | 1 | 1 | 1 | | |
| 6 | R01 12G 691 | INTAKE GRILLE | | 2 | 2 | 2 | 2 | | |
| 7 | R01 12G 808 | BACK PLATE | | 1 | 1 | | | | |
| | R01 16G 808 | BACK PLATE | | | | 1 | 1 | | |
| 8 | R01 E01 641 | TOP PLATE | | 1 | 1 | | | | |
| | R01 E00 641 | TOP PLATE | | | | 1 | 1 | | |
| ⑨ | R01 16G 692 | INTAKE GRILLE | | | | 1 | 1 | | |
| ⑩ | R01 12G 523 | DRAIN SOCKET | | 1 | 1 | 1 | 1 | | |

ELECTRICAL PARTS PK12FK3



| No. | Parts No. | Parts Name | Specifications | Q'ty / set | Remarks (Drawing No.) | Wiring Diagram Symbol |
|-----|-------------|-------------------|----------------|------------|--------------------------|-----------------------------|
| | | | | PK12FK3 | | |
| 1 | T7W B07 480 | HEAT EXCHANGER | | 1 | | |
| 2 | R01 KV5 114 | LINE FLOW FAN | | 1 | | |
| 3 | R01 566 103 | SLEEVE BEARING | | 1 | | |
| 4 | R01 KV5 106 | BEARING SUPPORT | | 1 | | |
| 5 | R01 KV5 102 | BEALING MOUNT | | 1 | | |
| 6 | T7W 51J 675 | FAN GUARD | | 1 | | |
| 7 | T7W 52J 675 | FAN GUARD | | 1 | | |
| 8 | T7W B04 223 | VANE MOTOR | | 1 | | MV |
| 9 | R01 KV5 530 | NOZZLE ASSEMBLY | | 1 | | |
| 10 | R01 KW1 002 | LEFT ROTARY VANE | | 1 | | |
| 11 | R01 KV5 048 | CENTER SUPPORT | | 1 | | |
| 12 | R01 KV5 092 | VANE SLEEVE | | 1 | | |
| 13 | R01 71G 527 | DRAIN HOSE | | 1 | | |
| 14 | R01 KW2 002 | RIGHT ROTARY VANE | | 1 | | |
| 15 | R01 KV5 059 | ARM | | 2 | | |



| No. | Parts No. | Parts Name | Specifications | Q'ty / set | Remarks (Drawing No.) | Wiring Diagram Symbol |
|-----|-------------|-----------------------------|--------------------|------------|--------------------------|-----------------------------|
| | | | | PK12FK3 | | |
| 16 | R01 KV5 038 | GUIDE VANE | | 16 | | |
| 17 | T7W A00 305 | REMOTE CONTROLLER CABLE | 33ft | 1 | | |
| 18 | T7W E05 713 | REMOTE CONTROLLER | | 1 | | R.B |
| 19 | R01 KV5 130 | MOTOR SUPPORT | | 1 | | |
| 20 | T7W B04 762 | FAN MOTOR | PK4W40-K | 1 | | MF |
| 21 | R01 KV5 105 | RUBBER MOUNT | | 1 | | |
| 22 | R01 KV5 135 | MOTOR COVER | | 1 | | |
| 23 | T7W E25 310 | CONTROLLER BOARD | | 1 | | I.B |
| 24 | T7W 410 239 | FUSE | 250V 6A | 2 | | F1<I.B> |
| 25 | T7W 410 716 | TERMINAL BLOCK | 3P(L1, N, GR) | 1 | | TB2 |
| 26 | R01 556 246 | TERMINAL BLOCK | 2P(1, 2) | 2 | | TB4,5 |
| 27 | T7W E02 313 | POWER BOARD | | 1 | | P.B |
| 28 | T7W B04 255 | RUN CAPACITOR | 7 μ F 220V | 1 | | C |
| 29 | T7W E12 202 | ROOM TEMPERATURE THERMISTOR | ROOM TEMPERATURE | 1 | | RT1 |
| 30 | R01 E02 202 | PIPE TEMPERATURE THERMISTOR | PIPE (INDOOR COIL) | 1 | | RT2 |

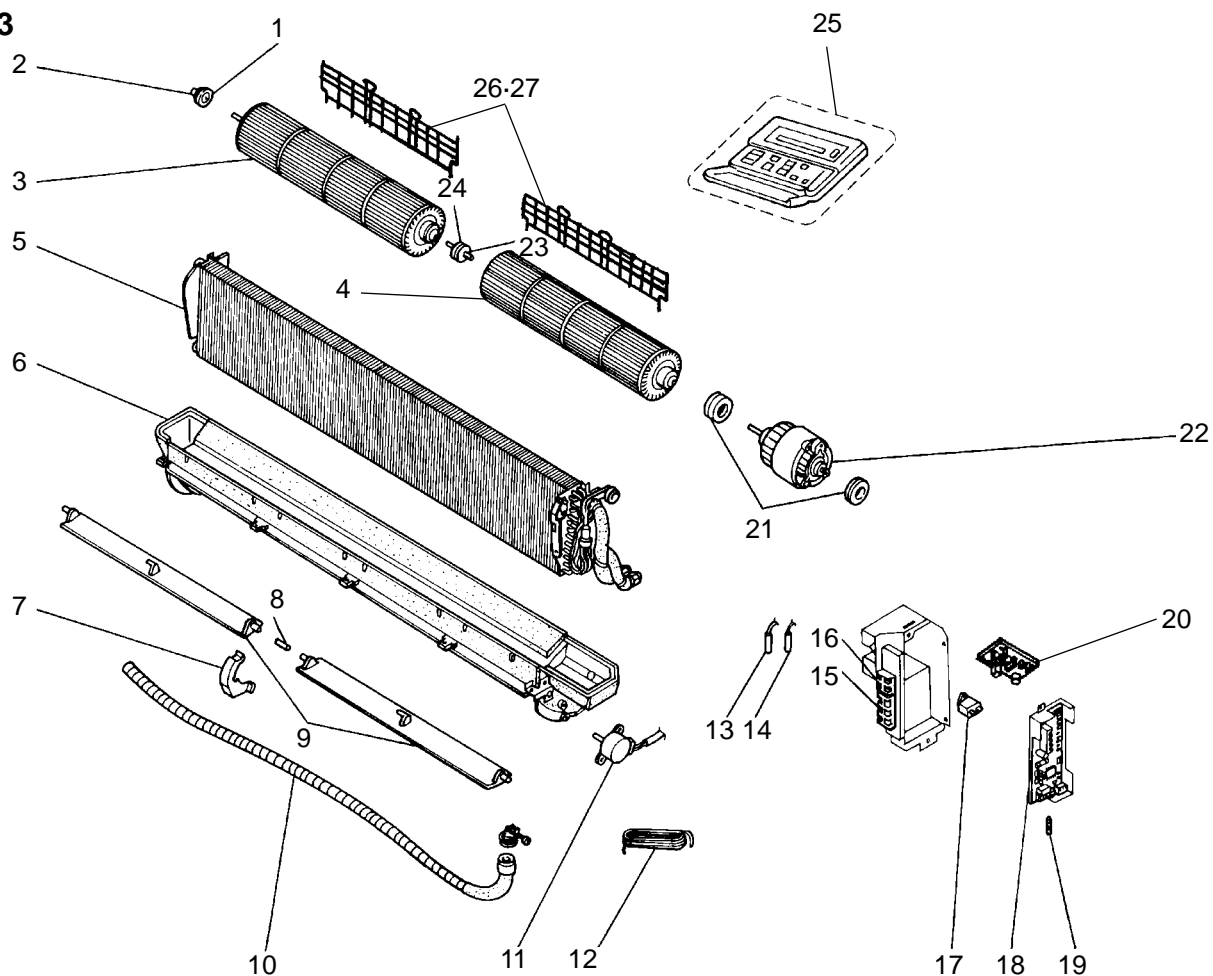
ELECTRICAL PARTS

PK18FK3

PK24FK3

PK30FK3

PK36FK3



| No. | Parts No. | Parts Name | Specifications | Q'ty / set | | | | Remarks (Drawing No.) | Wiring Diagram Symbol |
|-----|-------------|---------------------|----------------|------------|-------|-------|-------|--------------------------|-----------------------------|
| | | | | PK | | | | | |
| | | | | 18FK3 | 24FK3 | 30FK3 | 36FK3 | | |
| 1 | R01 005 103 | SLEEVE BEARING | | 1 | 1 | 1 | 1 | | |
| 2 | R01 Z61 102 | BEARING MOUNT | | 1 | 1 | 1 | 1 | | |
| 3 | R01 13G 114 | LEFT LINE FLOW FAN | | 1 | 1 | | | | |
| | R01 17G 114 | LEFT LINE FLOW FAN | | | | 1 | 1 | | |
| 4 | R01 13G 115 | RIGHT LINE FLOW FAN | | 1 | 1 | | | | |
| | R01 17G 115 | RIGHT LINE FLOW FAN | | | | 1 | 1 | | |
| 5 | T7W B04 480 | HEAT EXCHANGER | | 1 | | | | | |
| | T7W B06 480 | HEAT EXCHANGER | | | 1 | | | | |
| | T7W B05 480 | HEAT EXCHANGER | | | | 1 | 1 | | |
| 6 | T7W E13 529 | DRAIN PAN | | 1 | 1 | | | | |
| | T7W E14 529 | DRAIN PAN | | | | 1 | 1 | | |



| No. | Parts No. | Parts Name | Specifications | Q'ty / set | | | | Remarks (Drawing No.) | Wiring Diagram Symbol |
|-----|-------------|-----------------------------|--------------------------------|------------|-------|-------|-------|--------------------------|-----------------------------|
| | | | | PK | | | | | |
| | | | | 18FK3 | 24FK3 | 30FK3 | 36FK3 | | |
| 7 | R01 12G 621 | CENTER COVER | | 1 | 1 | 1 | 1 | | |
| 8 | R01 12G 063 | JOINT SHAFT | | 1 | 1 | 1 | 1 | | |
| 9 | R01 12G 002 | AUTO VANE | | 2 | 2 | | | | |
| | R01 16G 002 | AUTO VANE | | | | 2 | 2 | | |
| 10 | R01 KV5 527 | DRAIN HOSE | | 1 | 1 | 1 | 1 | | |
| 11 | R01 12G 223 | VANE MOTOR | | 1 | 1 | 1 | 1 | | MV |
| 12 | T7W A00 305 | REMOTE CONTROLLER CABLE | 33ft | 1 | 1 | 1 | 1 | | |
| 13 | T7W E12 202 | ROOM TEMPERATURE THERMISTOR | ROOM TEMPERATURE | 1 | 1 | 1 | 1 | | RT1 |
| 14 | R01 E02 202 | PIPE TEMPERATURE THERMISTOR | PIPE (INDOOR COIL) TEMPERATURE | 1 | 1 | 1 | 1 | | RT2 |
| 15 | T7W 410 716 | TERMINAL BLOCK | 3P(L1, N, GR) | 1 | 1 | 1 | 1 | | TB2 |
| 16 | R01 556 246 | TERMINAL BLOCK | 2P(1, 2) | 2 | 2 | 2 | 2 | | TB4,5 |
| 17 | T7W B02 255 | RUN CAPACITOR | 8μF 220V | 1 | 1 | 1 | 1 | | C |
| 18 | T7W E25 310 | CONTROLLER BOARD | | 1 | 1 | 1 | 1 | | I.B |
| 19 | T7W 410 239 | FUSE | 250V 6A | 2 | 2 | 2 | 2 | | F1.2<I.B> |
| 20 | T7W E02 313 | POWER BOARD | | 1 | 1 | 1 | 1 | | P.B |
| 21 | R01 12G 105 | RUBBER MOUNT | | 2 | 2 | | | | |
| | R01 16G 105 | RUBBER MOUNT | | | | 2 | 2 | | |
| 22 | T7W B02 762 | FAN MOTOR | PN4W40-K | 1 | 1 | | | | MF |
| | T7W B03 762 | FAN MOTOR | PN4W70-K | | | 1 | 1 | | MF |
| 23 | R01 12G 103 | SLEEVE BEARING | | 1 | 1 | 1 | 1 | | |
| 24 | R01 KV5 102 | BEARING MOUNT | | 1 | 1 | 1 | 1 | | |
| 25 | T7W E05 713 | REMOTE CONTROLLER | | 1 | 1 | 1 | 1 | | R.B |
| 26 | T7W 53J 675 | FAN GUARD | | 2 | 2 | | | | |
| 27 | T7W 71J 675 | FAN GUARD | | | | 2 | 2 | | |

1. TIMER

When using a program timer, a program timer adapter (PAC-825AD) is also needed.
(PAC-825AD is included with PAC-SC32PTA.)

| | |
|------------|--------------------------------------|
| Part No. | PAC-SC32PTA (with set back function) |
| Model Name | Program timer |

1-1 Program timer specifications

| | |
|----------------------------|---|
| Parts name | Program timer |
| Parts No. | PAC-SC32PTA |
| Exterior dimensions (inch) | 5-4/32x4-23/32x23/32 (130x120x18mm) |
| Installation | Wall mount |
| Type of clock | Quartz |
| Clock accuracy | ±50 second / month at 77°F |
| Display-Time | Liquid crystal display |
| -Week | Liquid crystal display |
| -Timer setting unit | Liquid crystal display |
| Program cycle | 24 hours |
| Timer setting unit | 30 minutes |
| No. of set points | 48 / day |
| Power rating | 5V DC ±5% (Supplied by Remote Controller) |

1-2 Feature of program timer

(1) Daily timer function

Daily timer can be set in 30 minutes units for up to 24 hours.
Each unit can be set for unit ON, unit OFF, or setback operation.

(2) Setback operation (PAC-SC32PT)

Set back operation is useful for reducing running costs

e.g. At a hotel with a 24-hour system

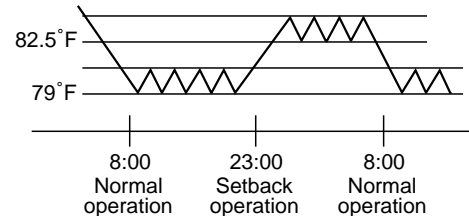
8:00~23:00 Cooling operation with set temperature at 79°F

23:00~8:00 Setback operation with 2 degrees of setback

As shown in the chart on the night, the set temperature rises 2 degrees automatically during the setback operation. When the setback operation ends, normal operation will begin.

(3) Weekly timer function

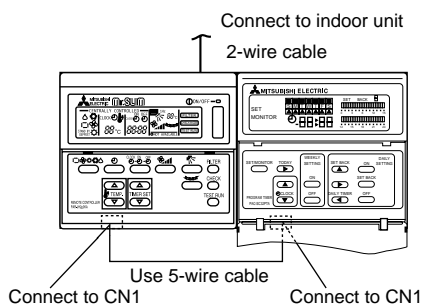
Daily timer function can apply to each day of the week.



1-3. How to connect program timer

(1) Install the program timer next to the remote controller the same way as the remote controller is installed.

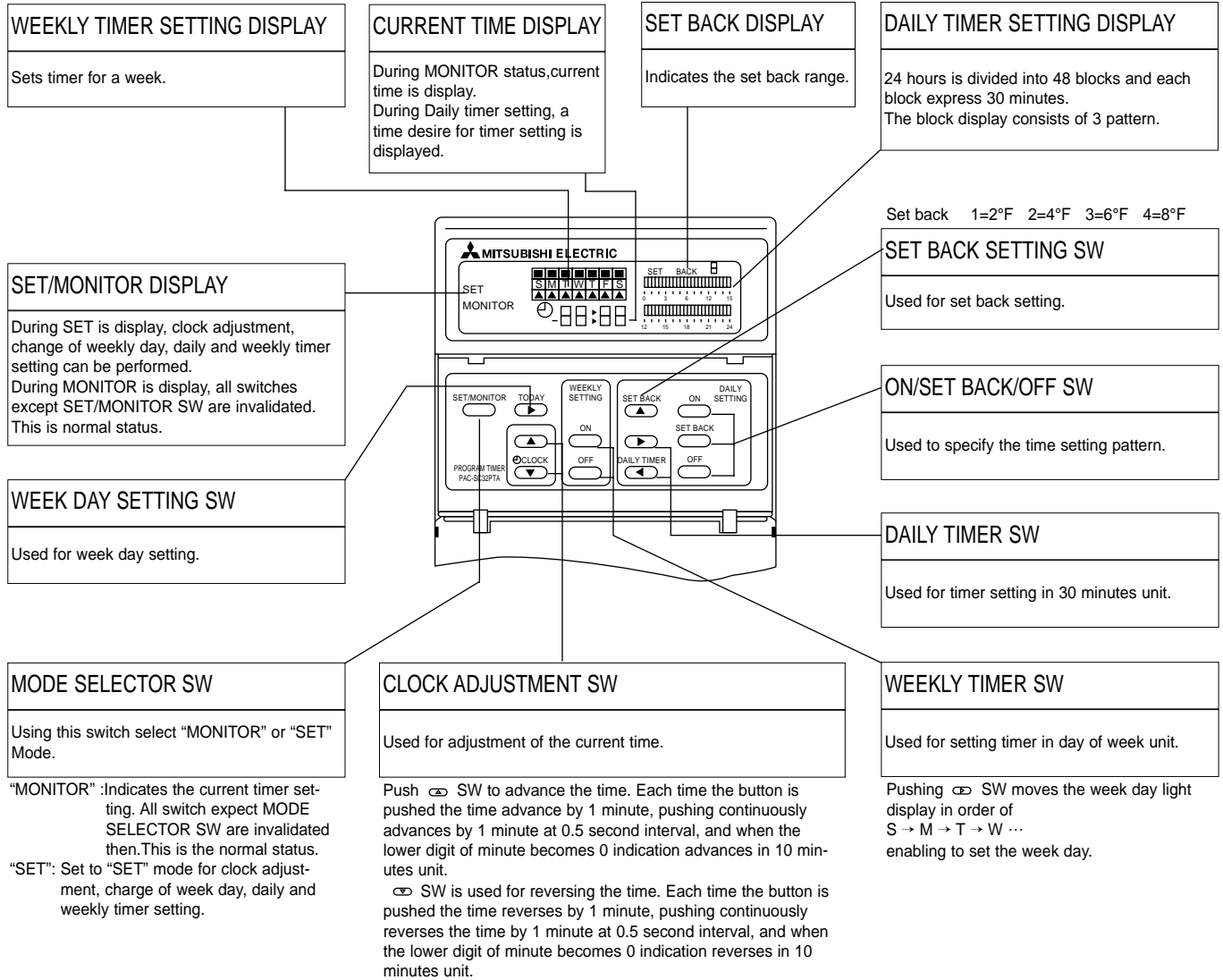
(2) Connect the program timer and the remote controller with a 5-wire cable as shown in the figure below



NOTE: While the program timer is connected to the remote controller, the 24hour ON/OFF timer on the remote controller will not operate.

1-4. Names and functions

<PAC-SC32PTA>





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Specifications are subject to change without notice.